California High-Speed Rail Authority

RFP No.: HSR 14-32

Request for Proposal for Design-Build Services for Construction Package 4

Reference Material, Part E.8 – Section 2081 Permit

California Department of Fish and Wildlife
Central Region
1234 East Shaw Avenue
Fresno, California 93710

California Endangered Species Act
Incidental Take Permit No. 2081-2015-024-04

California High-Speed Train Project
Fresno to Bakersfield Section Permitting Phase 1

Authority: This California Endangered Species Act (CESA) incidental take permit (ITP) is issued by the California Department of Fish and Wildlife (CDFW) pursuant to Fish and Game Code section 2081, subdivisions (b) and (c), and California Code of Regulations, Title 14, section 783.0 et seq. CESA prohibits the take[1] of any species of wildlife designated by the California Fish and Game Commission as an endangered, threatened, or candidate species.[2] CDFW may authorize the take of any such species by permit if the conditions set forth in Fish and Game Code section 2081, subdivisions (b) and (c) are met. (See Cal. Code Regs., tit. 14, § 783.4).

Permittee:	**California High-Speed Rail Authority**
Principal Officer:	**Mark A. McLoughlin** **Director Environmental Services**
Contact Person:	**Mark A. McLoughlin** **(916) 403-6934**
Mailing Address:	**770 L Street, Suite 800** **Sacramento, California 95814**

Effective Date and Expiration Date of this ITP:
This ITP shall be executed in duplicate original form and shall become effective once a duplicate original is acknowledged by signature of the Permittee on the last page of this ITP and returned to CDFW's Habitat Conservation Planning Branch at the address listed in the Notices section of this ITP. Unless renewed by CDFW, this ITP's authorization to take the Covered Species shall expire on **June 1, 2030**.

Notwithstanding the expiration date on the take authorization provided by this ITP, Permittee's obligations pursuant to this ITP do not end until CDFW accepts as complete the Permittee's Final Mitigation Report required by Condition of Approval 7.10 of this ITP.

[1] Pursuant to Fish and Game Code section 86, "'take' means hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." (See also *Environmental Protection Information Center v. California Department of Forestry and Fire Protection* (2008) 44 Cal.4th 459, 507 (for purposes of incidental take permitting under Fish and Game Code section 2081, subdivision (b), "'take' ... means to catch, capture or kill"].)

[2] "The definition of an endangered, threatened, and candidate species for purposes of CESA are found in Fish and Game Code sections 2062, 2067, and 2068, respectively.

Project Location:
This ITP is for Permitting Phase 1 of the Fresno to Bakersfield Section of the High-Speed Train (HST) Project (Project) which will begin on the south side of the G Street and San Benito Street intersection, north of Highway 41, in the City of Fresno, Fresno County, California (36.724564°, -119.787020°; Assessor's Parcel Number (APN) 46709234). From this intersection, the Fresno to Bakersfield HST alignment extends south either along or adjacent to the Burlington Northern Santa Fe Railway (BNSF) for approximately 99 miles before reaching the section endpoint, at the intersection of 7th Standard Road, and Santa Fe Way, within the city limits of Shafter, in Kern County, California (35.441607°, -119.199277°).

The Permittee has subdivided the Fresno to Bakersfield section of The Project into the following three Construction Packages (CPs):

- CP 1C is the portion of CP 1 that occurs from near San Benito Street just north of Highway 41 (3,000 feet south of the Fresno Station) (36.724564°, -119.787020°) to 1,000 feet south of East American Avenue (36.660780°, -119.750643°). The limits of CP 1C are completely within the metropolitan Fresno area; it is approximately five miles long.
- CP 2-3 extends from the end of CP 1C (1,000 feet south of East American Avenue) to approximately one mile (5,300 feet) north of the Tulare/Kern County line (35.804560°, -119.406009°). This construction package crosses Fresno, Kings, and Tulare counties; it is approximately 66 miles long.
- CP 4 is the final construction package in the Project. The limits of CP 4 are from the end of CP 2-3 approximately one mile north of the Tulare/Kern County line to 50 feet north of 7th Standard Road (35.441607°, -119.199277°); CP 4 is approximately 29 miles long.

Project Description:
The Project is the second of the nine California HST sections to be constructed; each section will function independently, but once joined together will create a statewide HST system. The HST will be an electrically powered, high-speed train with steel-wheel-on-steel-rail technology and state-of-the art safety, signaling, and automated train-control systems. The trains will be capable of operating at speeds of up to 220 miles per hour (mph) over a fully grade-separated, dedicated track alignment.

The Project will be built using a design/build (D/B) approach, a method of construction by which one D/B contractor works under a single contract with the Permittee to provide design and construction services. The contract with the D/B contractor will require compliance with standard development practices and regulations and implementation of any Project design features and all applicable conservation measures, mitigation measures, and permit conditions.

The Project is approximately 99 miles in length and includes construction and installation of all Project components (Exhibits 1 and 2). Construction and installation of all Project components will disturb up to 5,868 acres (hereafter, Construction Footprint). Construction may occur at any point along the Construction Footprint, and construction may occur at multiple locations simultaneously.

For purposes of this ITP, in addition to activities within the Construction Footprint (i.e. construction of the California HST), the Project also includes operations, maintenance, and inspection (O&M) activities within the Construction Footprint; and Mitigation Site activities. The four types of general activities are described more fully below. Also, each of the four general types of activities have specific Conditions of Approval in this ITP.

Construction Footprint Activities

The following activities will be undertaken within the Construction Footprint during the Project:

- Geotechnical Investigations: Geotechnical investigations will be conducted to define precise geological, groundwater, seismic, and hazardous material conditions along the alignment. The results of the geotechnical investigations will guide final design and construction methods for foundations, underground structures, tunnels, stations, grade crossings, aerial structures, systems, and substations. The geotechnical investigation work will involve subsurface exploration drilling near Project elements such as grade separation structures, and at regular intervals along the Construction Footprint. Specific geotechnical investigation sites will depend on the method of testing. Geotechnical investigation sites will include space for a truck-mounted drill rig, a water truck, and area for field crews to maneuver. The diameter of the borings will vary depending on the subsurface geological/hydrological conditions and the type of structure proposed at the investigation site. Geotechnical investigation may also include geophysical testing, soundings, and other in-place testing. Soil cuttings from the geotechnical investigations will be reused, dispersed on-site, or removed from the Construction Footprint depending on the condition of the soils and the drilling site. Drilling fluids will be discharged in accordance with the Construction General Permit (Order No. 2009-0009-DWQ as modified by Order No. 2010-0014-DWQ, NPDES No. CAS000002, adopted September 2, 2009, effective July 1, 2010), as well as the Section 401 Water Quality Certification.

- Staging Areas: Temporary areas needed for storing, fabricating, casting, and preparing pre-cast concrete segments, spoil storage areas, workshops, and storage of delivered construction materials will be identified by the Permittee. Field offices and/or temporary job-site trailers will also be located in the staging areas. All staging areas will be located within the Construction Footprint. These staging areas will be spaced roughly evenly along the Construction Footprint and will be chosen for their easy access to local roads and highways.

- Construction Easement (Laydown Yard):
  The construction easements will be within the HST Right-of Way (as defined below).

Table 1. Locations of Construction Easements

County	Acres	Latitude	Longitude	Near Major Water Crossings
Fresno	7.94	36.70037906240	-119.75998694800	
Fresno	8.75	36.69906958170	-119.76065577400	
Fresno	13.54	36.69133990430	-119.75600865000	
Fresno	2.97	36.68913078040	-119.75404315700	
Fresno	2.77	36.68770251460	-119.75392064000	
Fresno	86.21	36.68234823480	-119.75256845700	
Fresno	12.30	36.51686843730	-119.72163955200	
Fresno	90.46	36.50045118080	-119.71275397700	
Fresno	57.33	36.49955210640	-119.71716405200	
Fresno	15.98	36.45913257490	-119.63774721700	
Fresno	10.34	36.45312896600	-119.62924057900	Cole Slough (Kings River Complex)
Kings	33.03	36.44806322280	-119.62542082700	Dutch Johns Cut (Kings River Complex)
Kings	14.18	36.43089371170	-119.61001363900	Kings River (Kings River Complex)
Kings	80.67	36.33415208650	-119.59442814700	
Fresno	7.94	36.70037906240	-119.75998694800	
Kings	85.78	36.33043621240	-119.59595880400	
Kings	124.27	36.28929048990	-119.59444526600	
Kings	5.05	36.23420077730	-119.60140336800	
Kings	16.19	36.17272010110	-119.60961967200	Cross Creek
Kings	24.89	36.17028845860	-119.60760820800	Cross Creek
Tulare	27.15	36.04851334150	-119.51876259300	Tule River
Tulare	168.65	36.03169582010	-119.50376605700	
Tulare	164.05	36.02481498120	-119.50869508500	
Kern	164.52	35.76473394330	-119.39667571800	
Kern	41.13	35.64859420840	-119.33219671200	
Kern	177.16	35.58336972300	-119.32657617600	
Kern	17.97	35.57102103140	-119.33302191600	
Kern	12.81	35.49469259000	-119.26155739600	
Kern	16.36	35.49002581910	-119.25662171200	
Kern	272.32	35.46584809810	-119.22289895400	
Kern	66.84	35.45107069460	-119.21343780100	

- Utility relocation and protection: High-risk utilities, such as overhead high-voltage wires, pressurized transmission mains, water lines, fiber optics, and communications will be relocated and/or protected in place by the Permittee. Permittee will be responsible for completing designs and preparing plans and specification for relocation and construction of utilities. The construction and relocation of utilities will begin once Permittee has completed their design to ensure Project components are well coordinated. Permittee will be responsible to coordinate the relocation of utilities with local jurisdictions and utility owners throughout the Project and will design and construct the relocation of utilities in conflict with the Project. This ITP only covers utility relocation and protection occurring within the Construction Footprint, as defined above.

- Batch plants: Permitee may use batch plants already in existence or portable batch plants. Up to three portable batch plants will be used if the Permittee needs to perform precast operations or if specialty concrete that exceeds 1,500 cubic yards is required. The temporary batch plant(s) would produce the Portland cement concrete or asphaltic concrete needed for roads, bridges, aerial structures, retaining walls, and other concrete structures. The temporary batch plant(s) will be approximately 2,500 to 3,000 square feet in size and will consist of silos containing fly ash, lime, aggregates, and cement; heated tanks of liquid asphalt; sand and gravel material storage areas; mixing equipment; aboveground storage tanks; and designated areas for sand and gravel truck unloading, concrete truck loading, and concrete truck washout.

- Site Preparation and Demolition: Vegetation removal, clearing, grubbing, demolition and grading, followed by the mobilization of equipment and materials will be executed within the Construction Footprint

Earthwork: The following types of excavation will be employed within the Construction Footprint during earthwork activities:

- Open-cut slope: will be used in areas where sufficient room is available to open-cut the area and slope the sides back to meet the adjacent existing ground. The slopes will be designed similar to any cut slope, taking into account the natural repose angle of adjacent ground material and global stability.

- Temporary: excavation support structures will be designed and installed to support vertical or nearly vertical faces of the excavation in areas where room to open-cut does not exist. This type of structure does not contribute to the final load-carrying capacity of the trench structure and will either be abandoned in place or dismantled as the excavation is being backfilled.

- Permanent: structures will be designed and installed to support vertical or nearly vertical faces of the excavation in areas where room to open-cut does not exist. This type of structure will form part of the permanent final structure.

Right of Way (ROW): The HST will consist of a fully grade-separated and access-controlled track alignment to maintain local traffic and agricultural access. Unlike existing passenger and freight trains in the Project vicinity, there will be no at-grade road crossings, and the HST will not share its tracks with freight trains. The HST right-of-way (ROW) will be completely within the Construction Footprint, will be permanently disturbed, and will typically be 120 feet wide in areas where the track is at-grade and 60 feet wide where the track is elevated. The Project will have four different vertical profiles (Table 2).

Table 2. Project Right-of-Way Vertical Profiles

Profile	CP 1C	CP 2-3	CP 4	Total Linear Miles
At-grade	2.62	55.96	23.55	**82.13**
Retained-cut (Below-grade)	1.28	0.00	0.00	**1.28**
Elevated profile	1.21	9.54	5.39	**16.14**
Retained-fill		4.34	4.33	**8.67**
Total	5.11	65.50	28.94	**99.55**

- At-grade Profile: The rail will be fixed by specially developed high-strength clips to pre-stressed concrete cross ties that will be embedded in either crushed rock ballast or a continuous concrete slab where the alignment will be at-grade (Figure 1). This profile will be common in areas where the ground is relatively flat and in rural areas where interference with local roadways is limited. The top of the rail will be constructed at a minimum of 4.5 feet above the 100-year floodplain or higher when transitioning to an elevated structure. The height of the at-grade profile will vary to accommodate slight changes in topography, provide clearance for storm-water culverts and structures to allow water flow, and enable potential wildlife movement. A drainage system may be designed to include a three-foot wide drainage swale on either side of the track that will be intercepted at regular intervals by culverts and open structures to carry runoff to existing natural drainages or appropriate municipal drainage systems. Drainages may also include paired 30-inch wide culverts under the embankment spaced as frequently as necessary to prevent ponding and allow drainage. Ducts will be laid alongside the HST tracks to carry low-voltage power cables to power the trackside signaling and communications apparatus and fiber optic cables that will enable continuous communications with the HST on-board computers and train controls. The duct covers

will also serve as safety walkways for detraining passengers in the event of an emergency train stop. There will be 82.13 linear miles of at-grade profile.

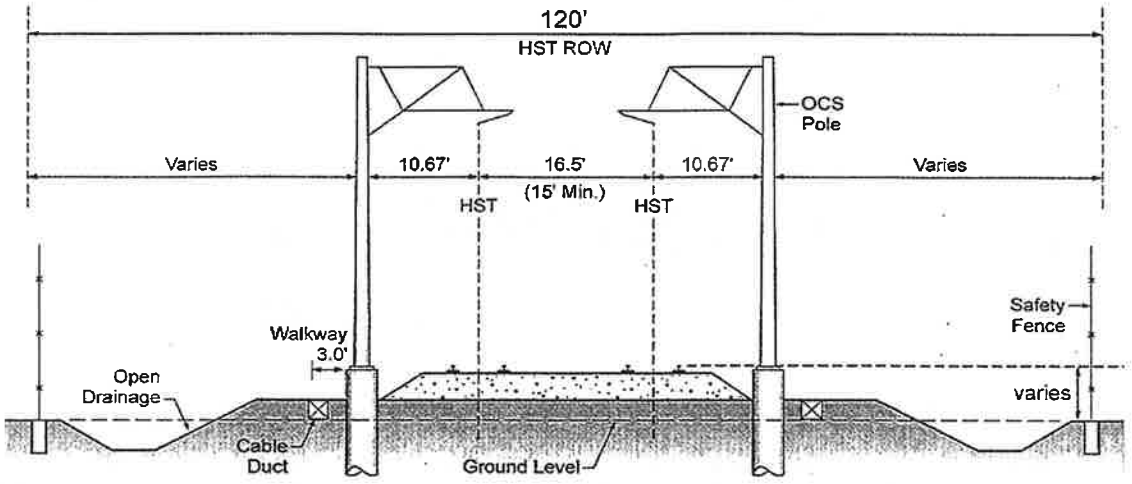

Figure 1. Typical Cross section of an At-grade Profile

- At-grade Profile Construction: Permittee will begin construction of at-grade sections by excavating or leveling the ground surface up to three feet before the rail bed is built up. Excavations up to six feet may be necessary where highly compressible soils, such as peat or soft clay, are present and not remedied by other means. Following initial grading, Permittee will move earth for use in the rail bed, construct the rail bed using scrapers to expand cuts, and then deposit material to build up the rail bed. Permittee may also use materials to build embankments for nearby overpasses. Borrow materials will be obtained from existing permitted borrow pits and quarries, and construction of the rail bed will be completed using ballast material from existing permitted quarries.

- Retained-fill profile: Retained-fill profiles will be used to narrow the ROW within a constrained corridor to minimize property acquisition or to transition between an at-grade profile and an elevated profile (Figure 2). The guideway will be raised off the existing ground on a retained-fill platform made of reinforced walls, much like a freeway ramp. Short retaining walls will have a similar effect and will protect the adjacent properties from a slope extending beyond the rail. Retained-fill profiles can be high enough to allow road undercrossings and wildlife crossings. There will be 8.67 linear miles of retained-fill profile.

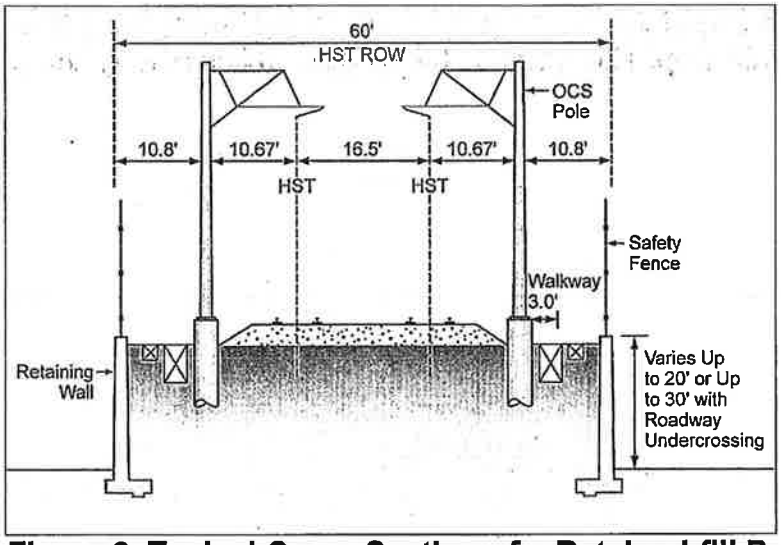

Figure 2. Typical Cross Section of a Retained-fill Profile

- Retained-cut profile: Retained-cut profiles will be used when the rail crosses under existing rail tracks, roads, or highways that are at-grade (Figure 3). This profile type will be used only for short distances in highly urbanized and constrained situations. Retaining walls will be needed to protect the adjacent properties from a cut slope extending beyond the rail guideway. Retained-cut profiles are also used for roads or highways when it is more desirable to depress the roadway underneath an at-grade HST alignment. There will be 1.28 miles of retained-cut profile.

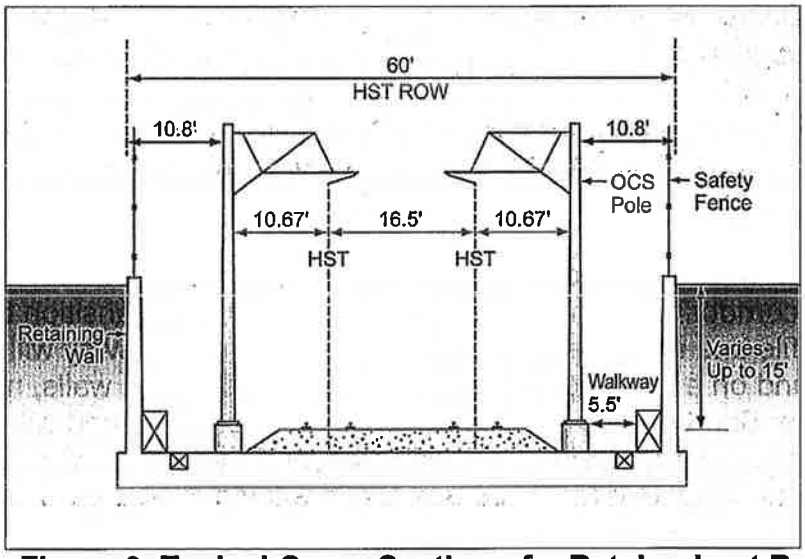

Figure 3. Typical Cross Section of a Retained-cut Profile

- Elevated profile: Elevated profiles will be used in urban areas where extensive road networks must be maintained. An elevated profile will have a minimum clearance of approximately 16.5 feet over roadways and approximately 24 feet over railroads (Figure 4). Pier supports will be approximately ten feet in diameter at the ground. Elevated profile structures may also be used to cross water bodies. The trackway may be at-grade on either side, but the width of the water channel may require a bridge at the same level, which will be built in the same way as the elevated profile. There will be 16.14 miles of elevated profile.

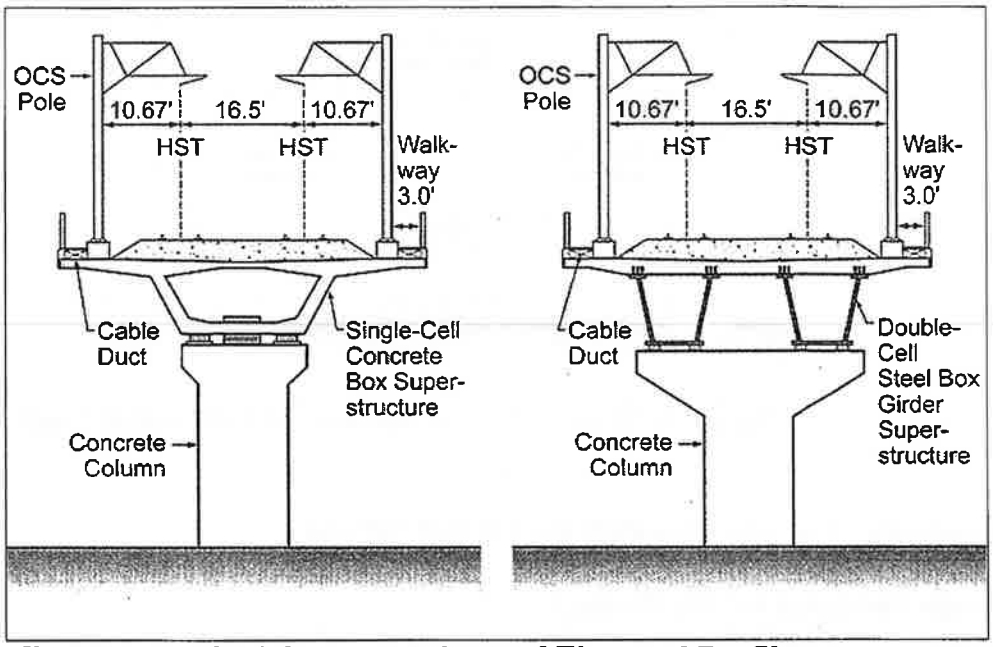

Figure 4. Typical Cross sections of Elevated Profiles

- Straddle bents: When the HST elevated profile will cross over a roadway or railway on a very sharp skew (degree of difference from the perpendicular), a straddle bent will ensure that the piers are outside of the functional/operational limit of the roadway or railway (Figure 5). A straddle bent is a pier structure that spans (or "straddles") the functional/operational limit of a roadway, highway, or railway. Roadway and highway crossings that have a smaller skew angle (i.e., the crossing is nearly perpendicular) will use intermediate piers in medians to span the functional ROW. However, for larger skew angle crossing conditions, median piers will result in excessively long spans that are not feasible. Straddle bents that clear the functional ROW will be spaced as needed (typically 110 feet apart) to provide feasible span lengths for bridge crossings at larger skew angles.

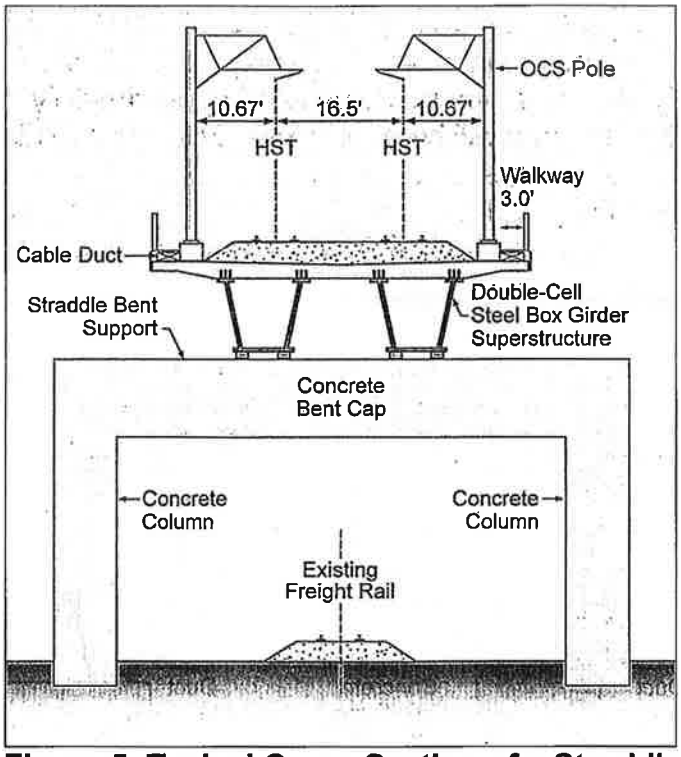

Figure 5. Typical Cross Section of a Straddle Bent

Structural Modifications to accommodate the Project include:

Table 3. Design Features for the Project

Design Feature	CP1-C	CP 2-3	CP 4
Number of major water crossings	0	6	1
Number of roadway undercrossings & overcrossings	3	33	9
Number of dedicated wildlife crossings	0	70	33

Roadway modifications to accommodate the Project include:

- Roadway Overcrossings: Roadway overcrossings will have two lanes, each with a width of 12 feet. The shoulders will be four to eight feet wide, depending on average daily traffic volumes. The paved surface for vehicles will range from 32 to 64 feet wide. Minimum clearance will be 27 feet over the HST (Figure 6 and 7). Specifications are based on county road standards.

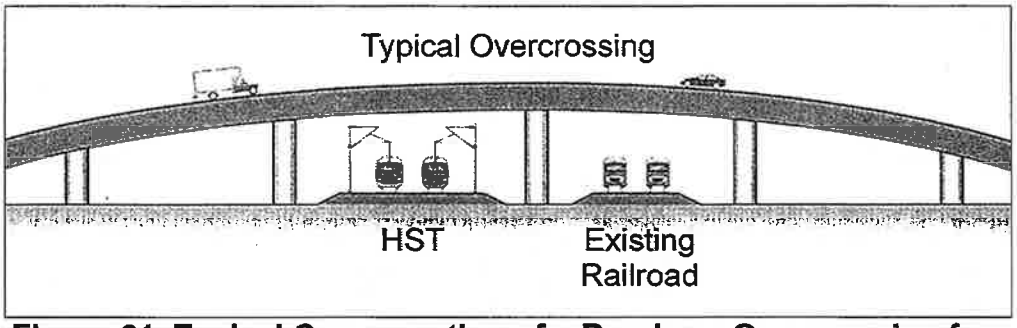

Figure 61. Typical Cross section of a Roadway Overcrossing for both the HST and an Existing Railroad

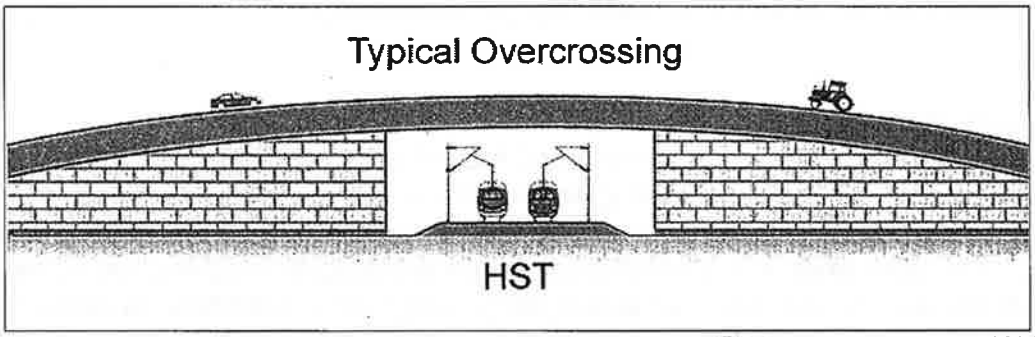

Figure 7. Typical Cross Section of a Roadway Overcrossing the HST

- Elevated HST Overcrossings: In urban areas, it may be more feasible to elevate the HST (Figures 4 and 5, above). This type of crossing will be especially relevant in downtown urban areas, where use of an elevated HST alignment will minimize impacts on the existing roadway system.

- Roadway Undercrossings: Roadway undercrossings will allow the HST to travel over roadways (Figure 8).

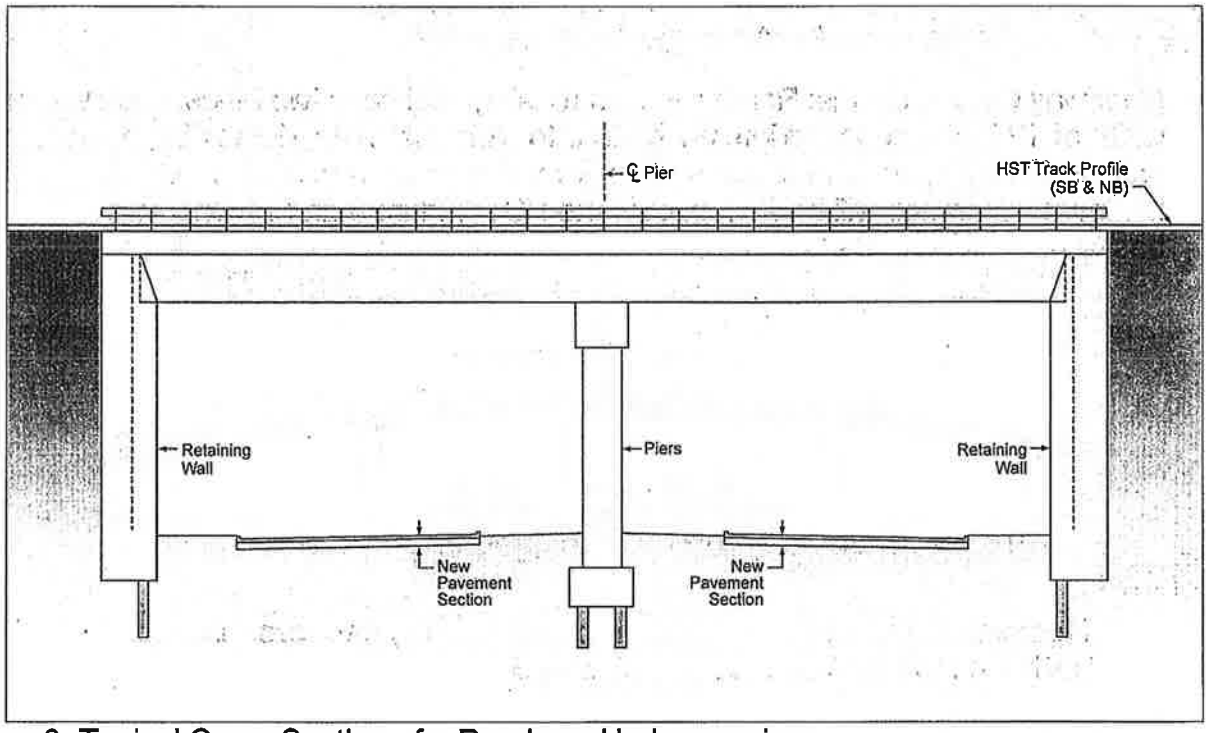

Figure 8. Typical Cross Section of a Roadway Undercrossing

Waterway Crossing Structures:
It is anticipated that construction at some locations will occur when seasonal riverine or constructed watercourses contain flowing water. Construction of a crossing over a seasonal riverine feature may require more than one season to complete and dewatering or diversion of water from the work area may be required. Areas requiring dewatering will be isolated by a temporary cofferdam system made of sheet piling, water- filled bladders, or other typical methods, and the areas would be dewatered, as necessary, to permit construction. Permittee will direct diverted surface water or groundwater back into the original watercourse downstream from the cofferdam in a manner that meets SWRCB water quality standards. If the diverted surface water or groundwater does not meet applicable water quality standards it could undergo water quality treatment (such as settling tanks before discharge), be discharged at a publicly owned treatment works facility, and/or be temporarily applied (in both duration and volume) to land.

Before dewatering activities can begin, a dewatering plan must be submitted to CDFW for approval. BMPs for clear water diversions and construction dewatering would be implemented to avoid impacts on water quality during construction within and adjacent to seasonal riverine or constructed watercourses. A biological monitor would be present during construction activities at seasonal riverine and associated riparian vegetation or constructed

watercourses. Access to all crossings would be from existing access roads onto the right-of-way. Vehicle and equipment movements to and across seasonal riverine or constructed watercourses will be limited. Equipment and materials will be confined to the right-of-way outside the seasonal riverine features or constructed watercourses. Equipment and vehicles needed to perform the work are anticipated to include utility, concrete, and water trucks; graders, cranes, barges, backhoes, draglines, and vibratory hammers; and assorted hand tools and equipment. Work within the seasonal riverine or constructed watercourses will be limited to that required to install elements required for temporary falsework, support piles, and the superstructure using equipment positioned outside and within the channel, as necessary.

Temporary falsework is anticipated to require the installation and removal of approximately 35 to 40, two-foot diameter steel pipe piles. These lines of piles will be placed approximately 50 feet apart along the alignment across the constructed watercourse within the right-of-way. It is anticipated that approximately five to eight piles will be required for each temporary support frame or bent structure. Both temporary and permanent supports will be placed using a vibratory hammer and would be designed to withstand winter flows. Both falsework construction and removal are anticipated to occur during the in-water work window, which extends from April 15 through October 15.

Once cofferdams are in place, pile construction will be accomplished using rotary drilling rigs and using either bentonite or synthetic slurry along with temporary steel pipe casings to stabilize the upper portion of the pile shaft excavation. The estimated time to construct piles will vary with the diameter and depth of the drilled hole, but it is anticipated that approximately three to four days would be required per pile for installation of the larger-diameter elements. Construction of all piles within the wetted perimeter of the low-flow channel, including cofferdam installation and removal, is anticipated to take approximately four to six weeks. Once construction of all crossing-related facilities is complete, the channel and banks will be returned to pre-construction contours, temporary BMPs will be removed, and the banks will be revegetated per the Restoration and Revegetation Plan (to be prepared) and Mitigation Monitoring and Reporting Program (MMRP) (2014c).

Kings River Complex:

The proposed crossing of the Kings River Complex on the Hanford East (H) alignment is located approximately eight miles north of the city of Hanford and four miles east of the town of Laton. The crossing of the Kings River Complex includes Cole Slough, Dutch John Cut, and the Kings River Old Channel. The Kings River Complex crossing will be accomplished by constructing an 11,684-foot long elevated viaduct and a 2,700-foot long embankment, with other hydraulic crossings within the remaining floodplain for wildlife and floodwater passage.

The viaduct foundation configuration consists of 10-foot diameter columns that are generally spaced 100 to 121.5 feet on center. The northern abutment of the viaduct would be located to the north of the Cole Slough levee, outside of the Kings River Complex floodplain. The southern abutment would be located to the south of the Kings River Old Channel, within the Kings River Complex floodplain. Four segments of the viaduct are truss bridges. One truss bridge would cross over Cole Slough with a 357-foot long single span. The second truss bridge would cross over Dutch John Cut with two, 357-foot spans and a two-column pier located in the overbank area on the north side of the main channel. The third truss bridge would cross over the Kings River Old Channel immediately downstream of an existing earthen low-flow crossing, with two, 322-foot spans and a two-column pier located in the main channel. The fourth truss bridge will be a 318.5-foot single-span bridge that crosses over Riverside Ditch.

With the proposed truss bridges, clearances of around 20 feet will be maintained between the 100-year Water Surface Elevations and the bridge soffit at the three channels (Cole Slough, Dutch John Cut, and Kings River Old Channel) of the Kings River Complex.
The cap of the column will be placed at least five feet below grade to accommodate contraction scour and potential long-term scour. The pile length will be determined to ensure that no significant damage will be suffered from the consequences of a 200 year flood flow. The bridge pier and abutment foundations will have 15 feet of horizontal setback from the toe of the levee, and the minimum vertical clearance from the top of the levee to the bridge soffit (18 feet). Application of rock riprap or other revetment armor will be considered at the South Abutment to protect the HST embankment, and move local scour to the upstream end of the guide bank.

Cross Creek:
The proposed approach for the crossing over Cross Creek would be similar to that proposed for the Kings River Complex. The HST alignment would traverse Cross Creek with a 9,600-foot long elevated structure. The main channel would be crossed in a single span with a 325-foot long bridge with support structures on the banks of the creek. The soffit, the lowest portion of the structure spanning the waterway, will be approximately 15.5 feet above the top of the bank on both sides of the river, providing ample clearance for passage of flood flows and wildlife. The elevated approach would begin approximately 4,000 feet north of the north bank of Cross Creek, with a minimum vertical clearance of about 30 feet from the creekbed. A steel truss structure would span the main channel.

Tule River:
The proposed approach for the crossing over Tule River would be similar to that proposed for the Kings River Complex. The elevated approach would begin approximately 8,000 feet north

of the Tule River and have a minimum vertical clearance over the river of about 30 feet. A single pile is anticipated to be placed in the Tule River, toward the southern bank.

Deer Creek:
The proposed approach for the crossing over Deer Creek would be similar to that proposed for the Kings River Complex. The elevated approach would begin approximately 200 feet north of the creek and have a minimum vertical clearance over the creek of approximately six feet. A single pile is anticipated to be placed within Deer Creek, near the northern bank.

Poso Creek:
Poso Creek would be crossed using a bridge structure. A bridge abutment would be located approximately 40 feet from the northern bank of Poso Creek and a bridge span would have a minimum vertical clearance over the creek of approximately ten feet. A single pile is anticipated to be placed in the middle of the creek.

Constructed or Modified Watercourses (Canals and Ditches):
A total of 98 constructed or modified watercourses would be crossed, using bridges, precast concrete culverts, or box culverts, and the size of the opening would be dependent on the hydrology.

Some culverts may be cast in place, if determined appropriate by the construction contractor.

Culverts would be sized to pass maximum canal/drain flows at all crossing locations.

The Feature ID Codes for the hydrologic crossings are based on the GIS mapping used for the application for a 1602 Fish and Game Code Master Streambed Alteration Agreement for the Project. The latitude and longitude location information is a point representative of the centroid for the GIS polygon that is shown in Table 4.

Table 4. Bridge Sections Locations

Watercourse (Feature ID Code)	Latitude	Longitude	Total Impact (acres)	Construction Package (CP)
Cole Slough	36.45360265390	-119.63083316000	0.42	2/3
Dutch John Cut	36.44646747690	-119.62229281700	1.13	2/3
Kings River Old Channel	36.43046	-119.608129	0.71	2/3

Watercourse (Feature ID Code)	Latitude	Longitude	Total Impact (acres)	Construction Package (CP)
Riverside Ditch	36.43309293250	-119.61009747000	0.06	2/3
Cross Creek	36.17329470290	-119.60725094600	0.28.	2/3
Tule River	36.04268946320	-119.51644351300	0.95	2/3
Deer Creek	35.92017741060	-119.42824486900	0.22	2/3
Poso Creek	35.66468122760	-119.33358375900	0.53	4
North Central Canal (031FOW01)	36.686396	-119.753616	0.24	1C
Unnamed Crossing (035DOW01)	36.681988	-119.750416	0.47	1c
Unnamed Crossing (034EOW04)	36.679459	-119.753659	0.37	1C
Unnamed Crossing (034PIOW01)	36.679101	-119.752526	0.39	1C
Central Canal West and East (034EOW02)	36.677928	-119.750341	0.80	1c
Unnamed Crossing (CCE220OW)	36.672481	-119.7510	0.01	1C
Viau Canal (037EOW02)	36.666209	-119.749516	0.01	1C
Unnamed Crossing (036DOW01)	36.666201	-119.751179	0.08	2/3
Unnamed Crossing (042EOW01)	36.652507	-119.7518	0.18	2/3
Unnamed Crossing (043DOW01)	36.649872	-119.7504	0.02	2/3
Unnamed Crossing (047COW01)	36.642944	-119.7507	0.10	2/3
Unnamed Crossing (064COW01)	36.639263	-119.7514	0.11	2/3
Unnamed Crossing (064COW02)	36.620011	-119.7525	1.05	2/3
Unnamed Crossing (067BOW01)	36.576729	-119.746	0.05	2/3
Unnamed Crossing (CCE19OW)	36.576729	-119.746	0.05	2/3
Unnamed Crossing (BN20OW01)	36.57672	-119.7455	0.08	2/3

Watercourse (Feature ID Code)	Latitude	Longitude	Total Impact (acres)	Construction Package (CP)
Unnamed Crossing (CCE20OW)	36.563219	-119.7422	0.13	2/3
Unnamed Crossing (CCE21OW)	36.561367	119.7351	0.13	2/3
Unnamed Crossing (CCE21SW)	36.557337	-119.7388	0.13	2/3
Unnamed Crossing (CCE28OW)	36.550009	-119.7328	0.04	2/3
Unnamed Crossing (CCE29SW)	36.549008	-119.733	0.71	2/3
Unnamed Crossing (CCE31SW)	36.461163	-119.6405	0.53	2/3
Unnamed Crossing (CCE30OW)	36.459176	-119.6405	0.30	2/3
Unnamed Crossing (CCE32OW)	36.454291	-119.6297	0.10	2/3
Unnamed Crossing (CCE34OW)	36.454142	-119.6296	0.15	2/3
Unnamed Crossing (CCE36OW)	36.453941	-119.6296	0.17	2/3
Unnamed Crossing (CCE37OW)	36.446603	-119.6229	0.39	2/3
Unnamed Crossing (159FOW01)	36.446132	-119.6223	0.14	2/3
Unnamed Crossing (162FOW01)	36.445749	-119.6248	0.60	2/3
Unnamed Crossing (180BOW02)	36.43206	-119.6106	0.36	2/3
Unnamed Crossing (177PIOW01)	36.431085	-119.6117	0.35	2/3
Unnamed Crossing (180BOW01)	36.429886	-119.61	0.06	2/3
Unnamed Crossing (CCE50OW)	36.403871	-119.5956	0.79	2/3
Unnamed Crossing (185BOW01)	36.37198	-119.5867	1.00	2/3
Unnamed Crossing (186BOW01)	36.367651	-119.5918	0.75	2/3
Unnamed Crossing (190BOW02)	36.320835	-119.5913	0.03	2/3
Unnamed Crossing (198BOW02)	36.320074	-119.5915	0.10	2/3

Watercourse (Feature ID Code)	Latitude	Longitude	Total Impact (acres)	Construction Package (CP)
Unnamed Crossing (CCE204OW)	36.305299	-119.592	0.46	2/3
Unnamed Crossing (CCE53OW)	36.262222	-119.5914	0.02	2/3
Unnamed Crossing (CCE55OW)	36.254755	-119.5909	1.72	2/3
Unnamed Crossing (CCE58OW)	36.240249	-119.6005	1.17	2/3
Unnamed Crossing (CCE219OW)	36.240246	-119.6053	0.03	2/3
Unnamed Crossing (CCE59OW)	36.211598	-119.6199	0.24	2/3
Unnamed Crossing (CCE218OW)	36.210559	-119.6201	0.18	2/3
Unnamed Crossing (CCE61OW)	36.211129	-119.6041	0.33	2/3
Unnamed Crossing (CCE65OW)	36.210838	-119.6096	0.24	2/3
Unnamed Crossing (CCE68OW)	36.207288	-119.6114	0.06	2/3
Unnamed Crossing (CCE73OW)	36.202309	-119.6142	1.63	2/3
Unnamed Crossing (CCE69OW)	36.196366	-119.6133	0.09	2/3
Unnamed Crossing (CCE78OW)	36.19633	-119.6107	0.05	2/3
Unnamed Crossing (CCE79OW)	36.189166	-119.6123	0.02	2/3
Unnamed Crossing (1029OW01)	36.189062	-119.6107	0.12	2/3
Unnamed Crossing (CCE87OW)	36.181984	-119.6097	0.16	2/3
Unnamed Crossing (CCE89OW)	36.181783	119.6098	0.20	2/3
Unnamed Crossing (CCE94OW)	36.172908	-119.6079	0.28	2/3
Unnamed Crossing (240HOW03)	36.159514	-119.601	0.46	2/3
Unnamed Crossing (620OW01)	36.157208	-119.5991	0.22	2/3
Unnamed Crossing (CCE100OW)	36.149709	-119.5922	0.66	2/3

Watercourse (Feature ID Code)	Latitude	Longitude	Total Impact (acres)	Construction Package (CP)
Unnamed Crossing (256GOW02)	36.139129	-119.5848	0.73	2/3
Unnamed Crossing (CCE105OW)	36.137757	-119.5875	0.48	2/3
Unnamed Crossing (CCE107OW)	36.13666	-119.5852	0.10	2/3
Unnamed Crossing (CCE110OW)	36.134708	-119.5743	1.25	2/3
Unnamed Crossing (CCE113OW)	36.123483	-119.5705	0.21	2/3
Unnamed Crossing (CCE119OW)	36.113417	-119.5578	3.44	2/3
Unnamed Crossing (PI04OW)	36.110892	-119.5504	0.29	2/3
Unnamed Crossing (288BOW02)	36.108856	-119.5566	0.24	2/3
Unnamed Crossing (288BOW05)	36.108442	-119.5593	0.01	2/3
Unnamed Crossing (289DOW03)	36.108286	-119.5542	0.44	2/3
Unnamed Crossing (289DOW02)	36.086953	-119.5381	0.13	2/3
Unnamed Crossing (289DOW01)	36.079876	-119.5326	0.20	2/3
Unnamed Crossing (290GOW01)	36.065327	-119.5275	0.20	2/3
Unnamed Crossing (290GOW02)	36.060726	-119.5258	0.03	2/3
Unnamed Crossing (297GOW01)	36.046774	-119.5194	0.95	2/3
Unnamed Crossing (301GOW03)	36.042489	-119.5169	0.19	2/3.
Unnamed Crossing (301GOW02)	36.042389	-119.5163	0.37	2/3
Unnamed Crossing (301GOW01)	36.040084	-119.5138	0.02	2/3
Unnamed Crossing (306GOW04)	36.040007	-119.5141	0.01	2/3
Unnamed Crossing (306GOW03)	36.03989	-119.5144	<0.01	2/3
Unnamed Crossing (306GOW02)	36.038121	-119.5132	0.38	2/3

Watercourse (Feature ID Code)	Latitude	Longitude	Total Impact (acres)	Construction Package (CP)
Unnamed Crossing (309GOW01)	36.026271	-119.5045	3.52	2/3
Unnamed Crossing (309DOW01)	36.021732	-119.5053	0.44	2/3
Unnamed Crossing (315GOW01)	36.009912	-119.4914	0.22	2/3
Unnamed Crossing (317EOW03)	36.008212	-119.4917	0.39	2/3
Unnamed Crossing (318DOW01)	36.007377	-119.4955	0.37	2/3
Unnamed Crossing (318DOW02)	35.996409	-119.48	0.05	2/3
Unnamed Crossing (322EOW01)	35.99454	-119.4826	0.65	2/3
Unnamed Crossing (1205OW20)	35.992632	-119.4853	0.01	2/3
Unnamed Crossing (330EOW02)	35.987059	-119.4761	1.16	2/3
Unnamed Crossing (337EOW01)	35.979839	-119.4706	0.95	2/3
Unnamed Crossing (412OW04)	35.970319	-119.4654	3.27	2/3.
Unnamed Crossing (412OW07)	35.972512	-119.466	0.52	2/3
Unnamed Crossing (412OW12)	35.962356	-119.4582	0.10	2/3
Unnamed Crossing (1205OW21)	35.960745	-119.4565	<0.01	2/3
Unnamed Crossing (349FOW04)	35.958346	-119.4551	11.78	2/3
Unnamed Crossing (349FOW02)	35.94902	-119.4516	0 0.01	2/3
Unnamed Crossing (349FOW03)	35.926755	-119.4318	1.65	2/3
Unnamed Crossing (WH140OW01)	35.920272	-119.4287	0.14	2/3
Unnamed Crossing (AB018BWL01)	35.920161	-119.4275	0.08	2/3
Unnamed Crossing (385FOW01)	35.912618	-119.4379	0.42	2/3
Unnamed Crossing (AB037PIOW01)	35.912812	-119.4389	3.79	2/3

Watercourse (Feature ID Code)	Latitude	Longitude	Total Impact (acres)	Construction Package (CP)
Unnamed Crossing (AB040BOW01)	35.912712	-119.4472	0.08	2/3
Unnamed Crossing (AB056BOW01)	35.905711	-119.4478	0.07	2/3
Unnamed Crossing (478AOW01)	35.891489	-119.4172	2.13	2/3
Unnamed Crossing (478ASW01)	35.891397	-119.4172	0.35	2/3
Unnamed Crossing (490AOW01)	35.891174	-119.4173	0.11	2/3
Unnamed Crossing (491AOW01)	35.86965	-119.4129	0.08	2/3
Unnamed Crossing (ACE09OW)	35.851923	-119.4111	2.56	2/3
Unnamed Crossing (ACE08OW)	35.840509	-119.4094	0.05	2/3
Unnamed Crossing (659BOW03)	35.743124	-119.3839	0.76	4
Unnamed Crossing (031FOW01)	35.732246	-119.3766	0.46	4
Unnamed Crossing (035DOW01)	35.67428	-119.3364	0.19	4
Unnamed Crossing (034EOW04)	35.664674	-119.3336	0.12	4
Unnamed Crossing (034PIOW01)	35.664238	-119.333	0.41	4
Unnamed Crossing (034EOW02)	35.637642	-119.3375	0.54	4
Unnamed Crossing (CCE220OW)	35.63758	-119.3308	0.03	4
Unnamed Crossing (037EOW02)	35.529283	-119.3061	0.02	4
Unnamed Crossing (036DOW01)	35.528833	-119.3054	0.02	4
Unnamed Crossing (042EOW01)	35.442196	-119.199678	0.08	4

- Culvert Construction: Culverts will be used for at-grade and retained-cut crossings and will range in size from small diameter pipe (12 inches to several feet in diameter) to large, precast concrete-box structures (three to eight-foot high openings and opening widths of five to 24 feet). Culverts will be configured

as a single conduit or as multiple parallel conduits. Culverts will be sized for a wide range of flows typical of small to medium-sized drainages or irrigation channels, with flow capacities ranging from less than one cubic foot per second (cfs) to several hundred cfs (depending on the culvert configuration, channel dimensions, channel slope, and downstream hydraulic constrictions). Each culvert or set of culverts will be sized individually based on hydrologic (runoff) and hydraulic (capacity) modeling. In the context of irrigation canals, culverts will include pressurized pipes or inverted siphons used to pass water from an open canal headwork under the HST alignment and adjacent embankments. Where possible, a straight culvert will be used rather than a U-shaped siphon. The culvert design will meet hydraulic conveyance requirements including providing for collection of trash (e.g., trash rack) or adequate capacity to pass the anticipated debris, and have adequate room for inspection and maintenance when dry. When irrigation flows or runoff cannot be conveyed by a culvert pipe, an open box culvert or a bridge will be required.

- Dedicated Wildlife Crossings:
  The dedicated wildlife crossing structures in the Cross Creek area (Kings County and Poso Creek area (Kern County) would be provided in at-grade portions of the railroad embankment at approximately 0.3-mile intervals. This segment passes adjacent to the Colonel Allensworth State Historic Park, Allensworth Ecological Reserve (ALER) and the Pixley National Wildlife Refuge (NWR). Dedicated wildlife crossing structures would also be placed to the north and south of each of the following river/creek crossings: Cole Slough, Dutch John Cut, Kings River, Cross Creek, Tule Creek, Deer Creek, Poso Creek, and Kern River. These wildlife crossing structures would be located between 100 and 500 feet from the edges of each riparian corridor unless superseded by elevated track (which allows for wildlife crossing underneath).

  Within the Construction Footprint, 103 dedicated wildlife crossings will be constructed (Table 5 and Exhibit 3). The wildlife crossings will consist of one of two concrete structure types, box culverts or short-span slab bridges, providing an opening below the HST tracks to facilitate wildlife movement (Figures 9 and 10). Which of the two structures used at each wildlife crossing location will depend on the height of the embankment supporting the track at that particular location. The design will provide a minimum opening of three feet high, ten feet wide, and up to 73 feet long, resulting in an openness factor (OF) of 0.41 as measured by (height × width)/length. The length of the crossing will be reduced whenever possible to improve the OF. To accommodate variations in the topography, the height of the structure may extend as much as 18 inches below grade; however, at least 50 percent of the vertical clearance will be above grade. Where feasible from an engineering perspective and appropriate from

an ecological perspective, the dedicated wildlife crossings will be constructed with larger openings that will accommodate movement across the alignment by a wider range of terrestrial wildlife species (Figure 9).

Table 5. Location of Dedicated Wildlife Crossings

Type of crossing	County	Latitude	Longitude
Wildlife Crossing	Fresno County	36.45406000020	-119.63144300000
Wildlife Crossing	Fresno County	36.45312200010	-119.63020200000
Wildlife Crossing	Fresno County	36.44989500010	-119.62619200000
Wildlife Crossing	Kings County	36.44726799960	-119.62317000000
Wildlife Crossing	Kings County	36.44623799980	-119.62204500000
Wildlife Crossing /Drainage Facility	Kings County	36.44506000040	-119.62080300000
Wildlife Crossing /Drainage Facility	Kings County	36.44010499970	-119.61595400000
Wildlife Crossing	Kings County	36.43397099980	-119.61075000000
Wildlife Crossing	Kings County	36.43280499980	-119.60985200000
Wildlife Crossing	Kings County	36.15729219240	-119.59967271000
Wildlife Crossing	Kings County	36.15342651180	-119.59684548600
Wildlife Crossing	Kings County	36.14373099980	-119.58973900000
Wildlife Crossing	Kings County	36.13594552130	-119.58385782400
Wildlife Crossing	Kings County	36.13276258890	-119.58119879400
Wildlife Crossing	Kings County	36.12801983530	-119.57821839800
Wildlife Crossing	Kings County	36.12775484580	-119.57883643300
Wildlife Crossing	Kings County	36.12349978740	-119.57135478300
Wildlife Crossing	Kings County	36.12217080160	-119.57398144300
Wildlife Crossing	Kings County	36.12193898350	-119.57457931700
Wildlife Crossing	Kings County	36.11963208550	-119.56619655000
Wildlife Crossing	Kings County	36.11613411310	-119.56139267400
Wildlife Crossing /Drainage Facility	Kings County	36.10431900030	-119.54809100100
Wildlife Crossing /Drainage Facility	Kings County	36.09972400030	-119.54419500000
Wildlife Crossing /Drainage Facility	Kings County	36.09498299990	-119.54077800000
Wildlife Crossing /Drainage Facility	Kings County	36.09005599970	-119.53778700000
Wildlife Crossing /Drainage Facility	Tulare County	36.08496799990	-119.53523600000
Wildlife Crossing	Tulare County	36.07543856850	-119.53147123700

Type of crossing	County	Latitude	Longitude
Wildlife Crossing	Tulare County	36.07016200180	-119.52945749800
Wildlife Crossing	Tulare County	36.06642646200	-119.52803187300
Wildlife Crossing	Tulare County	36.04293540840	-119.51682675300
Wildlife Crossing	Tulare County	36.04208514880	-119.51620534500
Wildlife Crossing	Tulare County	36.03984660820	-119.51456137800
Wildlife Crossing /Drainage Facility	Tulare County	36.02835232920	-119.50615918700
Wildlife Crossing /Drainage Facility	Tulare County	36.02834639470	-119.50617598800
Wildlife Crossing	Tulare County	36.02360159860	-119.50270236300
Wildlife Crossing	Tulare County	36.01660908080	-119.49758837200
Wildlife Crossing	Tulare County	36.01281817300	-119.49481869500
Wildlife Crossing	Tulare County	36.00459719540	-119.48882216700
Wildlife Crossing	Tulare County	36.00033242240	-119.48568931000
Wildlife Crossing	Tulare County	35.99100143500	-119.47889633900
Wildlife Crossing	Tulare County	35.98733330130	-119.47621172000
Wildlife Crossing	Tulare County	35.98329401020	-119.47327484800
Wildlife Crossing	Tulare County	35.97919750970	-119.47029245500
Wildlife Crossing	Tulare County	35.97517743010	-119.46732497400
Wildlife Crossing	Tulare County	35.96888647660	-119.46273028100
Wildlife Crossing	Tulare County	35.96456580340	-119.45958335100
Wildlife Crossing	Tulare County	35.96030409730	-119.45647014400
Wildlife Crossing	Tulare County	35.95598253960	-119.45335770100
Wildlife Crossing	Tulare County	35.95169105480	-119.45014660900
Wildlife Crossing	Tulare County	35.94648927720	-119.44636495400
Wildlife Crossing	Tulare County	35.94190271970	-119.44301331300
Wildlife Crossing	Tulare County	35.93692788760	-119.43937713000
Wildlife Crossing	Tulare County	35.93692788760	-119.43937713000
Wildlife Crossing	Tulare County	35.93277900430	-119.43636470000
Wildlife Crossing	Tulare County	35.93277900430	-119.43636470000
Wildlife Crossing	Tulare County	35.92856262980	-119.43327512300
Wildlife Crossing	Tulare County	35.92855967860	-119.43330793800
Wildlife Crossing	Tulare County	35.92465400010	-119.43040800000
Wildlife Crossing	Tulare County	35.92456422820	-119.43059913200
Wildlife Crossing	Tulare County	35.92070053850	-119.42819079800
Wildlife Crossing	Tulare County	35.90331698260	-119.41977325900
Wildlife Crossing	Tulare County	35.89935768890	-119.41838569900
Wildlife Crossing	Tulare County	35.89436584480	-119.41674315800
Wildlife Crossing	Tulare County	35.88681999970	-119.41496400000
Wildlife Crossing	Tulare County	35.88137700020	-119.41404700000

Type of crossing	County	Latitude	Longitude
Wildlife Crossing	Tulare County	35.87676199990	-119.41349300000
Wildlife Crossing	Tulare County	35.87227299980	-119.41302700000
Wildlife Crossing	Tulare County	35.86942100040	-119.41273100000
Wildlife Crossing	Tulare County	35.86422000000	-119.41219200000
Wildlife Crossing	Tulare County	35.85901899990	-119.41165300000
Wildlife Crossing	Tulare County	35.85385899970	-119.41111700100
Wildlife Crossing	Tulare County	35.84774100030	-119.41047700000
Wildlife Crossing	Tulare County	35.84051600010	-119.40973200000
Wildlife Crossing	Tulare County	35.83456300010	-119.40911700000
Wildlife Crossing	Tulare County	35.82860900010	-119.40850000000
Wildlife Crossing	Tulare County	35.82265600020	-119.40788300000
Wildlife Crossing	Tulare County	35.81670300020	-119.40726700000
Wildlife Crossing	Tulare County	35.81074899960	-119.40665000000
Wildlife Crossing	Tulare County	35.80479600010	-119.40603300000
Wildlife Crossing	Tulare County	35.79884200040	-119.40541700000
Wildlife Crossing	Tulare County	35.79279399960	-119.40470700000
Wildlife Crossing	Kern County	35.78792400040	-119.40388600000
Wildlife Crossing	Kern County	35.78302599980	-119.40281600000
Wildlife Crossing	Kern County	35.77756199970	-119.40132400000
Wildlife Crossing	Kern County	35.77212699980	-119.39951800000
Wildlife Crossing	Kern County	35.76676399980	-119.39741000000
Wildlife Crossing	Kern County	35.75680200020	-119.39258600100
Wildlife Crossing	Kern County	35.75220399990	-119.38993100000
Wildlife Crossing	Kern County	35.74613600040	-119.38598700100
Wildlife Crossing /Drainage Facility	Kern County	35.73914978800	-119.38064180900
Wildlife Crossing /Drainage Facility	Kern County	35.73451099960	-119.37680100000
Wildlife Crossing /Drainage Facility	Kern County	35.73035199980	-119.37293300000
Wildlife Crossing /Drainage Facility	Kern County	35.72629299970	-119.36891100000
Wildlife Crossing /Drainage Facility	Kern County	35.72223800010	-119.36488000000
Wildlife Crossing /Drainage Facility	Kern County	35.71340300020	-119.35694700000
Wildlife Crossing /Drainage Facility	Kern County	35.70841400020	-119.35307100000
Wildlife Crossing /Drainage Facility	Kern County	35.69886799980	-119.34672600000
Wildlife Crossing	Kern County	35.69093507400	-119.34256605900

Type of crossing	County	Latitude	Longitude
Wildlife Crossing /Drainage Facility	Kern County	35.68302339000	-119.33892255200
Wildlife Crossing	Kern County	35.67432316500	-119.33597577300
Wildlife Crossing	Kern County	35.67432316500	-119.33597577300
Wildlife Crossing /Drainage Facility	Kern County	35.64438049530	-119.33166221200
Wildlife Crossing /Drainage Facility	Kern County	35.63665466670	-119.33171633300

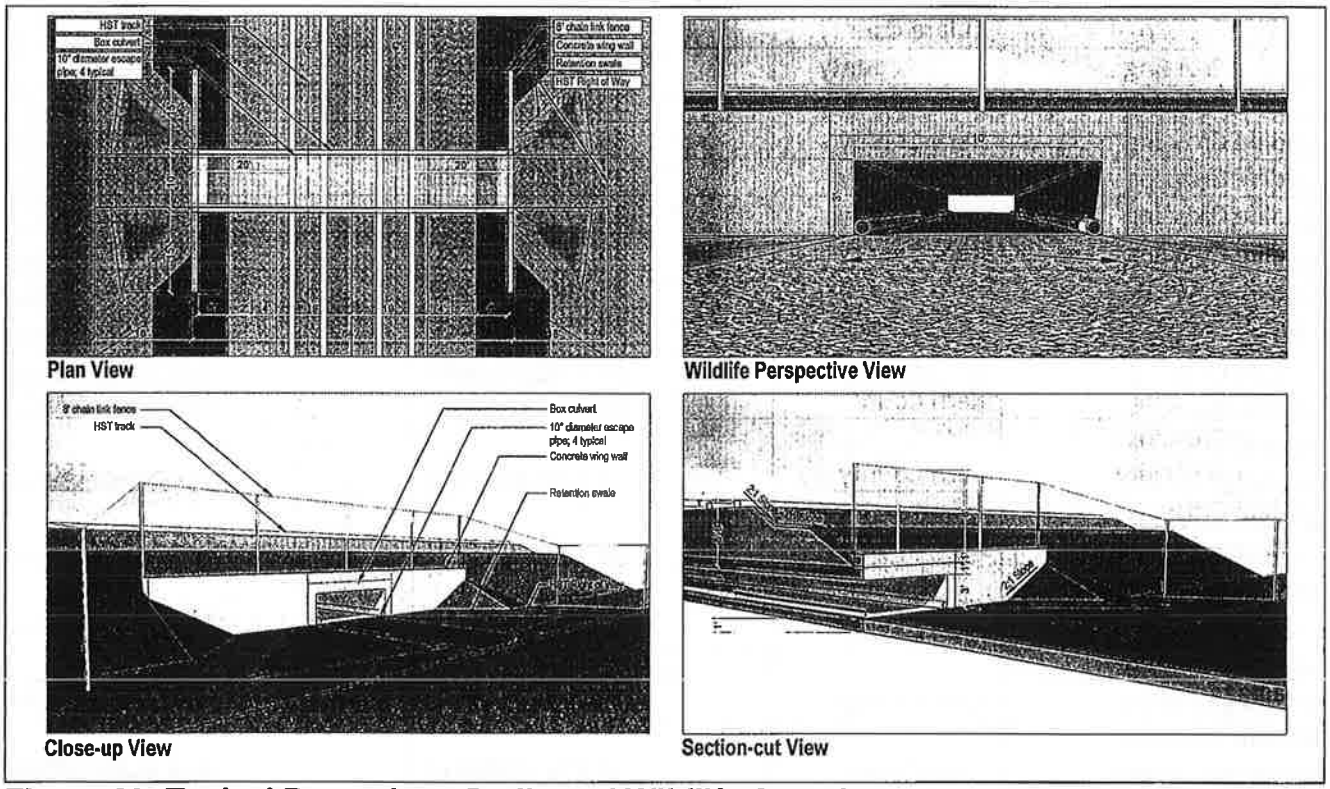

Figure 29. Typical Box culvert Dedicated Wildlife Crossing

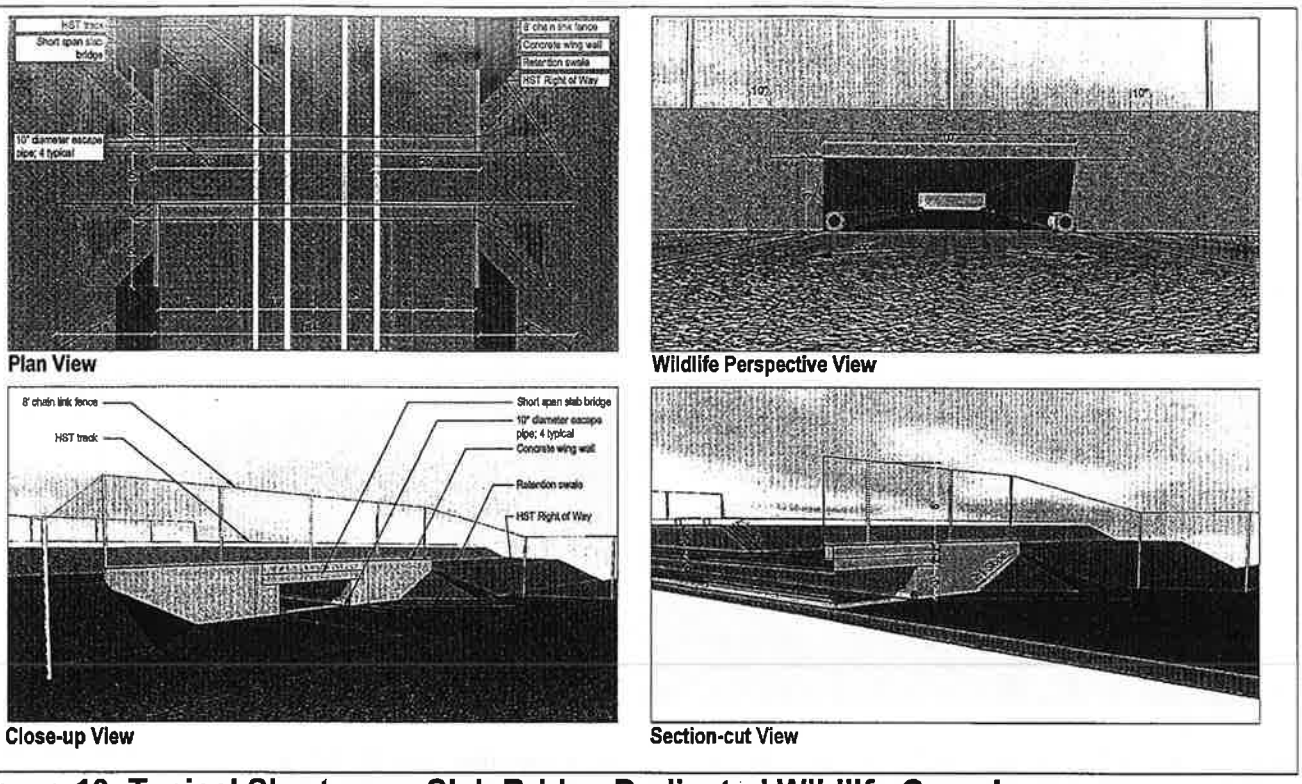

Figure 10. Typical Short-span Slab Bridge Dedicated Wildlife Crossing

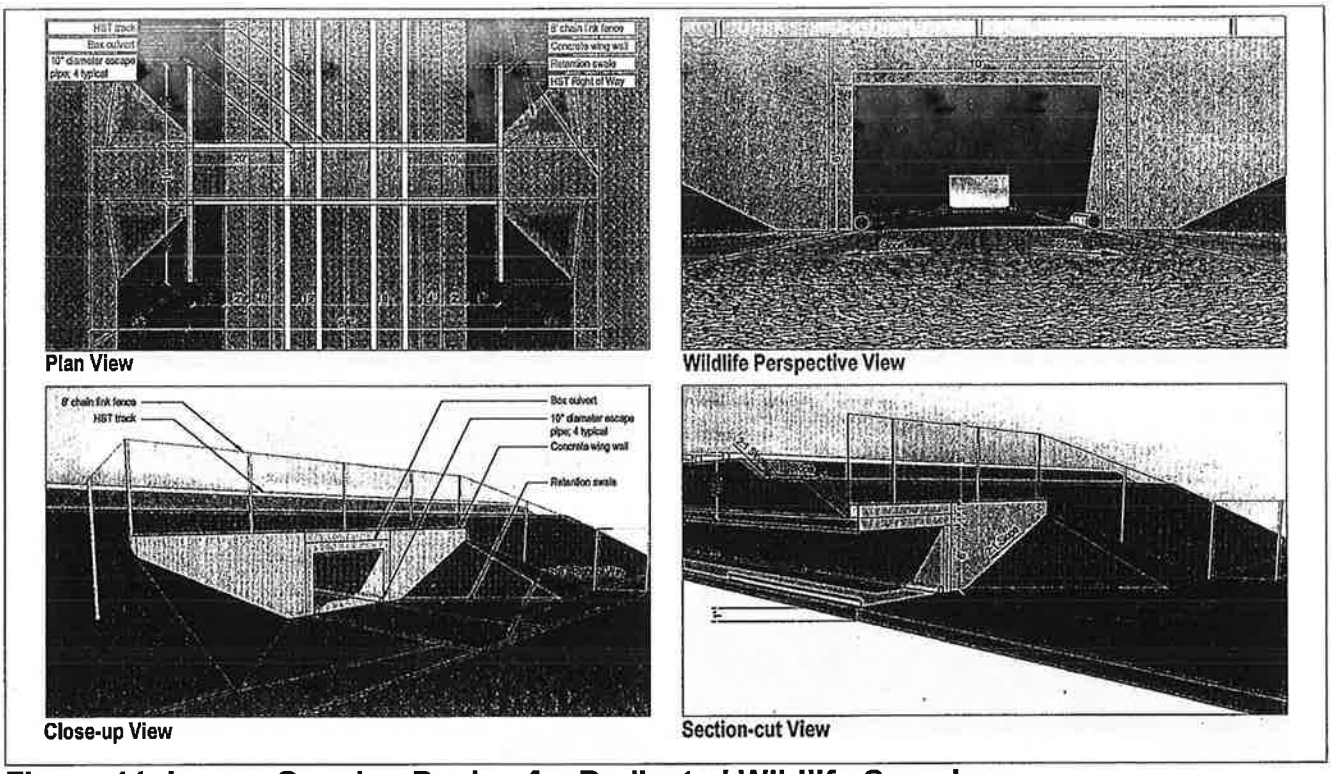

Figure 11. Larger Opening Design for Dedicated Wildlife Crossings

At locations where stormwater swales are parallel to the HSR track embankment to control stormwater, they will be designed to terminate at the crossing to prevent water from ponding in the structure. The path will be shaped to drain to the sides, and small retention basins will be provided adjacent to the path to collect runoff. These features will keep the crossing passable during normal rain events. To allow terrestrial wildlife unimpeded access to the crossing structures, Access Restriction (AR) fencing and Access Deterring (AD) fencing (described below) will be diverted toward the toe of the slope, up the embankment, and above the entrance of the structure. For each crossing, four sections of corrugated metal pipe, 20 feet long and ten inches in diameter, will be anchored to either the floor or the wall of the crossing. The openings of both ends of the corrugated metal pipes will be narrowed to four to six inches in diameter to afford temporary refuge opportunities for wildlife (e.g., kit fox) from larger predators. Any changes to the design of wildlife crossing structures such as, circular or elliptical pipe culverts and larger (longer) culverts with crossing structure distances of up to 100 feet, must meet the following constraints: the design must have a minimum of three feet of vertical clearance (crossing structure height), be depressed by no more than 1.5 feet below-grade (half the vertical clearance), and must meet or exceed the minimum 0.41 openness factor.

Kings/Tulare Regional Station:
The Kings/Tulare Regional Station will be east of SR 43 (Avenue 8) and north of the San Joaquin Valley Railroad (36.3343513531, -119.594304843). The station building would be approximately 40,000 square feet with a maximum height of approximately 75 feet. The entire site would be approximately 42.25 acres, including eight acres designated for the station, bus bays, short-term parking, kiss-and-ride accommodations, and a surface parking lot with approximately 2,280 spaces.

Construction of the Kings/Tulare Regional Station:
The Kings/Tulare Regional Station for the Project would be newly constructed. The typical construction sequence would be:

- Demolition and site preparation: Permittee will be required to construct detour roadways, new station entrances, construction fences and barriers, and other elements required because the existing facilities on the worksite would be taken out of service. Permittee will be required to perform street improvement work, site clearing and earthwork, drainage work, and utility relocations. Substations and maintenance facilities are assumed to be newly constructed structures. For platform improvements or additional platform construction, Permittee may be required to realign existing track.

- Structural Shell and Mechanical/Electrical Rough-Ins: For these activities, Permittee will construct foundations and erect the structural frame for the new station, enclose the new building, and/or construct new platforms and connect the structure to site utilities. Additionally, Permittee would rough-in electrical and mechanical systems and install specialty items such as elevators, escalators, and ticketing equipment.

- Finishes and tenant improvements: Permittee will install electrical and mechanical equipment, communications and security equipment, finishes, and signage. Permittee may also install other tenant improvements, if requested.

- Elevated Profile Construction: Permittee may implement various methods of construction for elevated profiles, using cast-in-place (CIP) or precast/prestressed concrete and structural steel in various combinations. Where needed, other structural types will be used, including steel plate and box girders, steel trusses, and cable-supported structures.

Installation methods and the equipment required to install the elements of a structure will vary. When prefabrication of structural elements is employed using either structural steel or concrete, Permittee will produce the various prefabricated elements off-site while concurrently constructing the substructure required to support them at the various locations.

Permittee may use a precast span-by-span segmental method, whereby large, prefabricated bridge segments would be produced at a temporary, purpose-built facility, known as a fabrication/casting yard. After the element is completed, Permittee would move each prefabricated element on a special wheeled transporter to the job site for installation. Depending on the size and weight of the prefabricated element, the transporters may travel on top of the already completed portion of the elevated structure and then feed a segment to a special gantry crane (which would also stand on top of the already completed elevated structure) that hoists and positions the segments. Permittee would then place the segments on piers constructed before the segments arrive at the site.

A conventional CIP reinforced or prestressed/post-tensioned concrete superstructure on temporary falsework may also be a method of constructing elevated structures. Falsework bents supported on the ground would be used for temporarily supporting CIP concrete construction. Longer span construction, where ground support of the falsework is not feasible, would be accomplished using multiple precast segmental components or CIP balanced cantilever techniques, both of which would utilize post-tensioned steel bars or tendons to support/tie the elements together

Elevated profile structural components are as follows:

- Foundations: An aerial structure foundation pile cap would be supported by an average of four large diameter piles with diameters ranging from five to nine feet. Commonly referred to as drilled shafts, they are holes drilled to the design depth and filled with reinforced concrete. The depth of the piles will depend on results from the pre-construction geotechnical investigations. Pile construction will be achieved by using rotary drilling rigs, and either bentonite or synthetic slurry along with temporary steel pipe casings that may be used to stabilize pile shaft excavation. The estimated pile production rate will vary with the diameter and depth of the drilled hole, with an estimate of three to four days per pile for installation of the larger diameter elements. Additional pile installation methods will include the bored piles, rotary drilling CIP piles, driven piles, and a combination of pile jetting and driving.

- Pile caps: After the piles are installed, pile caps may be constructed using conventional methods. For pile caps constructed near existing structures, such as railways, bridges, and underground drainage culverts, temporary sheet piling (i.e., temporary walls) may be used to minimize disturbances to adjacent structures. Sheet piling may be installed and extracted using vibratory pile-driving equipment where impact driving could affect adjacent facilities or sensitive environmental resources.

- Substructure: Aerial structures with pier heights ranging from 20 to 90 feet may be constructed using conventional slip form and scaffolding methods. A self-climbing formwork system may be used to construct piers and portal beams more than 90 feet tall. The self-climbing formwork system will be equipped with a winched lifting device that is raised along the column by hydraulic means with a structural frame mounted on top of the previous pour. A three-day cycle for each 12 feet of pour height will be achieved. The final size and spacing of the piers will depend on the type of superstructure spans that the columns will support.

- Superstructure: The final bridge or aerial structure design may include several different methods, such as span-by-span, incrementally launched, progressive cantilever, or balanced cantilever construction. The construction methods selected will be chosen to minimize impacts to local resources.

Fencing: Fencing will be erected along the entire ROW, for safety and security. Two types of fence will be installed: Access Restriction (AR) fencing and Access Deterring (AD) fencing.

- AR fencing is permanent fencing used to deny access to the HST tracks and to protect HST property which requires a high degree of security. AR fencing will also be used in areas where the risk of trespassing is high and the consequences may result in injury to trespassers and affect HST operation. Fencing will extend from ground level to a minimum height of eight feet, consisting of galvanized steel woven mesh or links (commonly known as chain link or cyclone fencing), topped by three strands of barbed wire, 12 inches in height.

- AD fencing is permanent fencing used to deter access and/or prevent passage to areas that do not require a high degree of security. AD fences will also be used in areas where the risk of trespassing is low, such as along elevated structures or where trespassing will not result in injuries to trespassers or cause an operational impact. AD fencing will be six feet high, secured at the top and bottom to galvanized pipe railing, and will have no barbed wire.

Electrical System Facilities: California's electricity grid will power the HST. Trains will draw electric power from a catenary system fed through an overhead contact system, with the running rails acting as the other conductor. The following electrical system facilities will distribute power to propel the HST (Exhibit 4) and will collectively occupy 192.50 acres of permanent disturbance to the Construction Footprint:

Table 6. Electrical Systems Facilities

Station type	County	Latitude	Longitude	Acres
Paralleling Station	Fresno	36.72609839870	-119.78829135200	0.23
Paralleling Station	Fresno	36.66420739760	-119.75221808400	3.22
Paralleling Station	Fresno	36.47471938130	-119.67367256700	3.49
Paralleling Station	Fresno	36.47384840410	-119.66478677600	3.51
Paralleling Station	Fresno	36.47304848360	-119.66692765500	0.10
Paralleling Station	Fresno	36.37345575770	-119.59133945800	0.08
Paralleling Station	Fresno	36.37273299630	-119.59418079400	4.10
Paralleling Station	Fresno	36.37130378060	-119.59076050800	2.43
Paralleling Station	Kings	36.37122987230	-119.59182108000	0.07
Paralleling Station	Kings	36.30575823570	-119.59028604000	7.00
Paralleling Station	Kings	36.19650204250	-119.61153223900	1.74
Paralleling Station	Kings	36.19648996710	-119.61222473200	0.21
Paralleling Station	Kings	36.13714250590	-119.58164173700	3.42
Paralleling Station	Kings	36.13624367520	-119.58349318200	0.33
Paralleling Station	Kings	36.02191896530	-119.50213207200	2.45
Paralleling Station	Kings	35.90565592640	-119.43599484500	26.48
Paralleling Station	Kings	35.84767356790	-119.41070487400	0.20
Paralleling Station	Tulare	35.72438468610	-119.36627938700	2.62
Paralleling Station	Tulare	35.72397619510	-119.36690938200	0.08
Paralleling Station	Tulare	35.72221155870	-119.36558525600	1.81
Paralleling Station	Kern	35.66682280360	-119.33354396600	2.12
Paralleling Station	Kern	35.54354060950	-119.30986855000	8.51
Paralleling Station	Kern	36.47471938130	-119.67367256700	3.49
Paralleling Station	Kern	36.47384840410	-119.66478677600	3.51
Paralleling Station	Kern	36.47304848360	-119.66692765500	0.10
Paralleling Station	Kern	35.49374630460	-119.26114325800	2.06
Paralleling Station	Kern	35.49207876250	-119.25933679700	2.05
Switching Station	Kings	36.43559629260	-119.61004985400	4.77
Switching Station	Kings	36.42697594630	-119.60738110100	4.339
Switching Station	Kings	36.09213791920	-119.53633297900	4.33
Switching Station	Kings	36.08861621060	-119.53708094500	0.15
Switching Station	Kings	36.08626572910	-119.53699183400	6.52
Switching Station	Kings	36.08537482910	-119.53480892500	0.15
Switching Station	Kern	35.78288372300	-119.40225701400	2.58
Switching Station	Kern	35.78277288560	-119.40298872800	0.25
Switching Station	Kern	35.44396457270	-119.20323186400	2.42
Traction Power Sub-station	Fresno	36.59541992210	-119.75040655500	10.25

Station type	County	Latitude	Longitude	Acres
Traction Power Sub-station	Kings	36.25717898710	-119.59334132800	0.10
Traction Power Sub-station	Kings	36.25624051740	-119.59176689000	8.43
Traction Power Sub-station	Kings	36.25372066330	-119.59212956700	8.82
Traction Power Sub-station	Kings	36.25325636080	-119.59432219500	0.10
Traction Power Sub-station	Tulare	35.96213645930	-119.45619663900	7.56
Traction Power Sub-station	Tulare	35.95677921680	-119.45473794600	13.84
Traction Power Sub-station	Kern	35.60919740150	-119.32709974500	7.81
Traction Power Sub-station	Kern	35.60913703260	-119.33364308400	25.75

- Overhead Catenary System (OCS): Trains will receive power from an electrical system supplied through the OCS. The OCS will consist of approximately 6,700 mast poles within the HST ROW. The mast poles will be approximately 23.5 feet higher than the top of rail with contact wires suspended from the poles between 17 to 19 feet from the top of rail. The train will have an arm, called a pantograph, to maintain contact with the wire and provide power to the train. The mast poles will be spaced approximately every 200 feet along straight portions of the track and as close as every 70 feet in tight-turn track areas. The OCS will be connected to the traction power substations. The power supply will consist of a two-kilovolt (kV) by 25-kV OCS for all electrified portions of the HST. The OCS will be assembled in place over each rail and will include poles, brackets, insulators, conductors, and other hardware.

Traction Power Substation (TPSS): Up to nine TPSS permanently disturbing 82.65 acres will be located within the Construction Footprint (Table 6). The TPSS will be adjacent to the HST ROW and will accommodate a 32,000-square-foot (or 160-foot-by-200-foot) power supply station, an approximately 450-square-foot control room, two autotransformers, switchgear, transformers, a buffer area for safety purposes, and a 20-foot wide access road from the street access point to the protective fence perimeter at each parcel location. Each site would require a parcel of up to two acres. Pacific Gas and Electric Company (PG&E) would supply power to the TPSSs by 115-kV or larger power lines via three supply stations (or substations) and overhead transmission lines.

- Switching Stations: Up to nine switching stations permanently disturbing a total of 25.50 acres will be constructed within the Construction Footprint (Table 6). Each switching station will encompass a footprint of approximately 80 feet by 120 feet (0.22 acres) adjacent to the proposed HST alignment and a 20-foot wide access lane to the nearest roadway. Switching stations will be required at approximately 30-mile intervals along the Project.

- Paralleling Stations: Up to twenty- seven paralleling stations permanently disturbing 84.36 acres will be constructed within the Construction Footprint (Table 6). They will provide voltage stabilization and equalize current flow. Paralleling stations will be required at approximately five-mile intervals between the switching stations and the TPSSs. The paralleling stations will each be approximately 100 feet by 80 feet (0.18 acre) in size and will be situated adjacent to the HST ROW with a 20-foot wide access lane to the nearest roadway. Each station will also include an approximately 450-square-foot (18 feet by 25 feet) control room.

- Backup and Emergency Power Supply Sources: Should the flow of power be interrupted, the system will automatically switch to a backup power source, either through use of an emergency standby generator, an uninterruptable power supply, and/or a direct-current battery system. The Project will have permanent emergency standby generators installed at the passenger stations, the Heavy Maintenance Facility (HMF), and the terminal layup/storage and maintenance facilities. These standby generators are required to be tested (typically, once a month for a short duration) in accordance with National Fire Protection Association (NFPA) Standard 110/111 to ensure their readiness for backup and emergency use.

- Signaling and Train Control Elements: Signaling and train control elements include small signal huts/bungalows in the HST ROW for signal relay and microprocessor components, cabling to the field hardware and track, signals, and switch machines on the track. The signal houses are located at each universal track crossover, which are spaced at approximately 18-mile intervals along the Project (Table 7). Each universal crossover includes three train control facilities, one at each end, and one in the middle. The facility at each end includes one signal house (eight feet wide by 20 feet long). The facility in the middle includes two signal houses, both eight feet wide by ten feet long. All of these signal houses will be located within the HST ROW.

  Signaling equipment to be installed will include wayside cabinets and bungalows, wayside signals at interlocking, switch machines, insulated joints, impedance bounds, and connecting cables. The equipment will support automatic train protection, automatic train control, and positive train control to control train separation, routing at interlocking, and speed.

Table 7. Signal Houses and Locations

Type	County	Acres	Latitude	Longitude
Interlocking Site	Fresno	6.67	36.72181444650	-119.78322082400
Interlocking Site	Fresno	1.82	36.57717913140	-119.74695561400
Interlocking Site	Fresno	3.48	36.57450627090	-119.74570701200
Interlocking Site	Kings	4.35	36.36341636320	-119.59191635200
Interlocking Site	Kings	1.07	36.34138066100	-119.59192783700
Interlocking Site	Kings	2.81	36.34061345700	-119.59112792700
Interlocking Site	Kings	2.41	36.33054832740	-119.59193565500
Interlocking Site	Kings	0.17	36.32732485230	-119.59115438600
Interlocking Site	Tulare	7.77	36.01239664860	-119.49586756500
Interlocking Site	Tulare	20.89	35.83760935930	-119.40615319300
Interlocking Site	Kern	3.88	35.52649880520	-119.30004189400
Radio Site	Fresno	0.27	36.70035479190	-119.76117704600
Radio Site	Fresno	0.50	36.70005503000	-119.76026638100
Radio Site	Fresno	0.34	36.62714059090	-119.75108821300
Radio Site	Fresno	4.40	36.55038527940	-119.74274797400
Radio Site	Fresno	0.38	36.54863482110	-119.73679729800
Radio Site	Fresno	2.06	36.49795858410	-119.70863535000
Radio Site	Fresno	0.05	36.49688518290	-119.70677337900
Radio Site	Fresno	0.05	36.49514385870	-119.70484840300
Radio Site	Fresno	5.19	36.49342266390	-119.70717779000
Radio Site	Fresno	2.70	36.45967920700	-119.63664746000
Radio Site	Fresno	4.74	36.45824986540	-119.63528374400
Radio Site	Kings	0.05	36.40458670520	-119.59499494200
Radio Site	Kings	3.88	36.40298094920	-119.59739488200
Radio Site	Kings	0.04	36.40281453920	-119.59496835600
Radio Site	Kings	3.31	36.40213444030	-119.59174761900
Radio Site	Kings	3.55	36.28331310930	-119.58851157700
Radio Site	Kings	1.35	36.28080540390	-119.59108054200
Radio Site	Kings	0.15	36.28057497340	-119.59172926700
Radio Site	Kings	1.02	36.22605120110	-119.60559872600
Radio Site	Kings	0.84	36.22585640490	-119.60670550000
Radio Site	Kings	3.76	36.16770970590	-119.60246261300
Radio Site	Kings	1.67	36.16521598360	-119.60327263900
Radio Site	Kings	1.53	36.16257636930	-119.60139361800
Radio Site	Kings	0.26	36.11235881160	-119.55678384800
Radio Site	Kings	1.56	36.11199867170	-119.55550730000
Radio Site	Tulare	0.03	36.05349340960	-119.52285849900
Radio Site	Tulare	1.71	36.05201715570	-119.52162870600
Radio Site	Tulare	2.13	35.99235674640	-119.48042167100

Type	County	Acres	Latitude	Longitude
Radio Site	Tulare	6.07	35.94612652220	-119.44758285100
Radio Site	Tulare	3.10	35.93727626440	-119.44008016600
Radio Site	Tulare	5.20	35.88862696730	-119.41410497100
Radio Site	Tulare	0.05	35.88029570540	-119.41433423800
Radio Site	Kern	8.23	35.75905506640	-119.39186711000
Radio Site	Kern	0.05	35.75339666080	-119.39090991000
Radio Site	Kern	0.05	35.75119343600	-119.38957515900
Radio Site	Kern	2.30	35.74914220200	-119.38767044400
Radio Site	Kern	7.56	35.70107741810	-119.34598913200
Radio Site	Kern	0.09	35.69579545900	-119.34529469300
Radio Site	Kern	6.83	35.63753033830	-119.34025908800
Radio Site	Kern	2.12	35.57611661600	-119.33305239700
Radio Site	Kern	1.26	35.50874607840	-119.27954805000
Radio Site	Kern	2.78	35.46696381260	-119.23160714300

- Railroad Systems Construction: The railroad systems will include trackwork, traction electrification, signaling, and communications. In general, trackwork is the first rail system to be constructed, and it must be in place at least locally to start traction electrification and railroad signalizing installation. Trackwork construction will require the welding of transportable lengths of steel running onto longer lengths of approximately 0.25 mile. These lengths will then be placed in position on crossties or track slabs and field-welded into continuous lengths from special trackwork to special trackwork. Both tie and ballast as well as slab track construction will be used. Tie and ballast track construction, which will be used for at-grade and minor structures, uses cross ties and ballasts that are distributed along the trackbed by truck or tractor. In sensitive areas such as where the HST is parallel to or near streams, rivers, or wetlands, and in areas of limited accessibility, this operation may be accomplished by using the ROW with material delivery via the constructed rail line. For major structures, slab track construction will be used. Slab track construction is a non-ballasted track form employing precast track supports.

- Roadway Modifications: Changes to existing roads along or crossing the HST ROW will be needed because the HST requires a fully dedicated grade-separated track alignment for public safety and to achieve the desired speeds. The Project will require 86 roadway modifications; 40 in Fresno County, 24 in Kings County, seven in Tulare County, and 16 in Kern County. Roadway modifications will occupy 1515.18 total acres of the Construction Footprint (Table 8). At some locations, there will be an option to perform the modification as either an undercrossing or an overcrossing of the HST ROW. In these instances, the more conservative impact in terms of acreage

(e.g., higher acreage) has been included and evaluated in this ITP. Handrails, fences, and walkways will be provided for the safety of pedestrians and bicyclists during roadway modification.

Table 8. Location and Size of Project Roadway Modifications

Street Modification	County	Activity	Latitude	Longitude	Acres
State Route 41	Fresno	under the SR 41	36.72400039970	-119.78503724600	10.06
E California St	Fresno	Closed road	36.72145832100	-119.78262921700	0.28
S Cherry Ave	Fresno	Closed road	36.72090509380	-119.78182343600	0.25
S Van Ness Ave	Fresno	At-grade crossing over UPRR closed	36.71961244440	-119.77904103200	0.16
E Lorena Ave	Fresno	Closed road	36.71941406850	-119.78023179200	0.05
E Florence Ave	Fresno	Closed road	36.71775463230	-119.77709763000	0.18
S Sarah Ave	Fresno	Closed road	36.71766846420	-119.77835641600	0.07
E Belgravia Ave	Fresno	Closed road	36.71594366520	-119.77493402400	0.5
S Railroad Ave	Fresno	closed at E California Ave and S Orange Ave.	36.71517611130	-119.77518211900	7.8
E Church Ave	Fresno	E Church Ave pass over HST, UPRR, and BNSF. South Sunland Ave would be realigned and re-connected to E Church Ave farther to the east. Existing crossing over BNSF closed. South East would be raised to tie i*	36.71472247530	-119.77156135200	10.7
S Golden State Boulevard	Fresno	Over pass	36.71400033360	-119.77576763000	7.6
S East Ave	Fresno	Closed road	36.71199369880	-119.77258164400	0.54
E Jenson Bypass	Fresno	under existing Jensen Ave bridge in shallow trench to meet vertical clearance requirements.	36.70688587450	-119.76552461900	2.20
S Orange Ave	Fresno	Closed Road	36.70397348530	-119.76369359400	0.77
E Hardy Ave	Fresno	pass over E Hardy Ave on aerial structure.	36.69362943000	-119.75678393100	0.52

Street Modification	County	Activity	Latitude	Longitude	Acres
E Central Ave	Fresno	E Central raised over the HST. Retaining wall for the industrial facility to the north and south of the road. S Cedar Ave will be raised to meet at E Central Ave.	36.67808206850	-119.75249432700	7.10
E Malaga Ave	Fresno	E Malaga Ave closed with alternative crossings at E Central Ave and E American Ave.	36.67071579930	-119.75051117300	0.45
E American Ave	Fresno	E American Ave will pass over HSTs and existing BNSF tracks. connections to S Cedar Ave and S Maple Ave would be maintained.	36.66344467180	-119.75055696400	17.32
East Jefferson Avenue	Fresno	Closed road	36.64888697970	-119.75009751700	24.8
E Clayton Ave	Fresno	E Clayton Ave closed with alternative crossings at E Lincoln Ave and E Adams Ave.	36.64167736390	-119.75053447200	1.85
E Adams Ave	Fresno	E Adams Ave will pass over the HST BNSF tracks along the current street alignment.	36.63436279470	-119.75028296400	25.86
E Sumner Ave	Fresno	Closed road	36.62714491070	-119.75053873400	1.71
E South Ave	Fresno	E South Ave will pass over HST BNSF tracks An existing canal would be relocated.	36.61989257280	-119.75025029400	26.06

Street Modification	County	Activity	Latitude	Longitude	Acres
E Manning Ave	Fresno	E Manning Ave will pass over HST and BNSF. Alterations to local access roads will be required to maintain existing level of access west of HST. S Chance Ave will pass under E Manning Ave	36.60533077940	-119.74914460100	13.96
E Springfield Ave	Fresno	E Springfield Ave closed at HST with alternative crossing at E Manning Ave,	36.59807067220	-119.74970971000	1.71
E Dinuba Ave	Fresno	Closed road	36.59091583680	-119.74810487300	1.86
E Floral Ave	Fresno	E Floral Ave will pass over HST and BNSF RR	36.57638186840	-119.74494951900	30.34
E Rose Ave	Fresno	Closed road	36.56919851950	-119.74294350300	2.07
S Topeka Ave	Fresno	Closed road	36.56235110030	-119.74081401100	0.55
SR 41	Fresno	HST will travel under the SR 41 structures.	36.72400039970	-119.78503724600	10.06
E Nebraska Ave	Fresno	E Nebraska Ave will pass over HST and BNSF. Access to the commercial buildings (east) and residential properties (west) would be altered to accommodate the crossing structure.	36.56128807730	-119.74158511700	39.63

Street Modification	County	Activity	Latitude	Longitude	Acres
E Mountain View Ave	Fresno	A combined overpass with S Chestnut Ave will pass over HST and existing BNSF. E Mountain View Ave will have the main overpass along existing road alignment with S Chestnut Ave north-south raised and connected to both sides of HST	36.54833030470	-119.73558074000	58.95
E Kamm Ave	Fresno	Closed road	36.53289099500	-119.72987480400	1.76
S Willow Ave	Fresno	Closed road	36.52668241940	-119.72781873400	0.46
E Clarkson Ave	Fresno	E Clarkson closed at the HST and connect E Clarkson Ave to S Minnewawa Ave	36.50321767360	-119.71439528900	4.76
S Minnewawa Ave	Fresno	North S Minnewawa Ave closed at HST. S Minnewawa Ave west of HST will connect to E Clarkson Ave in the north.	36.49959830700	-119.71056949800	3.93
S Clovis Ave	Fresno	Will connect the north and south legs of the road by crossing roughly perpendicular over HST.	36.49397765440	-119.70410475900	35.56
E Elkhorn Ave	Fresno	E Elkhorn Ave will pass over HST	36.48928022910	-119.69799800700	30.92
S Fowler Ave	Fresno	S Fowler Ave will pass perpendicular over HST. Will directly link the north and south portions of S Fowler and will eliminate the tee intersections at E Elkhorn Ave.	36.48345852500	-119.68732627500	40.64

Street Modification	County	Activity	Latitude	Longitude	Acres
E Davis Ave	Fresno	E Davis will pass over HST	36.47426478630	-119.66931525600	30.83
8th Ave	Kings	A combined overpass solution with Dover Ave over the HST. 8th Ave will be elevated to join Dover Ave. T	36.41632782310	-119.60014122000	27.24
Dover Ave	Kings	Dover Ave will pass over HST	36.41581186120	-119.59956809100	27.27
Excelsior Ave	Kings	Excelsior Ave will pass over HST. Canal will be box culverted.	36.40168244260	-119.59437783900	31.62
Elder Ave	Kings	Elder Ave will pass over HST. Access roads provided to residential properties on both sides of the road.	36.38698126490	-119.59180693200	30.84
Flint Ave	Kings	Flint Ave will pass over HST An access road will be provided for the dairy. The ditch will be box culverted.	36.37212065260	-119.59157954800	37.82
Fargo Ave	Kings	Fargo Ave will pass over HST. The bridge will also pass over 7th Ave and HST. A new frontage road at the existing Fargo Ave will provide access to residential	36.35741807440	-119.59148570000	32.26
Hanford-Armona Ave	Kings	Hanford-Armona will be on a bridge over HST. The canal will be box culverted.	36.31345632820	-119.59161965600	25.33

Street Modification	County	Activity	Latitude	Longitude	Acres
Houston Ave	Kings	Houston Ave will pass over HST. Access to industrial properties to the east will require minor adjustments. A small watercourse crossing will be box culverted	36.29846805830	-119.59097521500	16.63
Iona Ave	Kings	Iona Ave will pass over HST. The canal will be box culverted.	36.28395235040	-119.59157826500	23.96
Idaho Ave	Kings	Idaho Ave will pass over HST. The canal running adjacent to Idaho Ave will be diverted at the south end. There will be an access road for the traction power facility.	36.26940801670	-119.59134664400	35.24
Jackson Ave	Kings	Jackson Ave will pass over HST. The canal running parallel to the road will be diverted at the south end.	36.25489528930	-119.59291323200	35.86
Jersey Ave	Kings	Jersey Ave closed at HST ROW east of SR 43.	36.24044550950	-119.59861780000	3.32
SR 43 near Jersey Ave	Kings	HST would be elevated and SR 43 would pass under HST.	36.23748308210	-119.60086659600	53.61
Kent Ave	Kings	Kent Ave will pass over HST south of existing road The watercourse would run underneath the crossing	36.22534174960	-119.60732767300	34.75

Street Modification	County	Activity	Latitude	Longitude	Acres
Kansas Ave	Kings	Kansas Ave will pass over HST south of existing road The watercourse will run underneath the crossing	36.21060384950	-119.61056457100	60.79
Lansing Ave	Kings	Closed road	36.19660698200	-119.61222875200	3.26
Nevada Ave	Kings	Nevada Ave pass over HST, BNSF, and SR 43 & connect with Nevada Ave east of SR 43	36.13734215630	-119.58335421200	31.31
Newark Ave	Kings	Niles Ave will extend east of 5th Ave to the north and connect to Newark Ave.	36.11899260320	-119.56749530300	6.03
5th Ave	Kings	5th Ave will realign and connect to Niles Ave east of HST	36.11725488500	-119.56222326300	7.02
Niles Ave	Kings	Closed road	36.11619454050	-119.56190412800	1.5
5th Avenue	Kings	Closed road. 5th Ave will realign and connected to Orange Ave east of HST.	36.11119297200	-119.55416707100	2.44
Waukena Ave	Kings	Waukena Ave will shift north slightly and pass over HST and a new connector road will be constructed to connect with Orange Ave east of HST.	36.11069748000	-119.55141546900	20.42
Orange Ave	Kings	Closed road. Orange Ave will connect with 5th Ave and Waukena Ave via new connector.	36.10899252210	-119.55404857700	14.37
Whitley Ave/State Rte 137	Kings	Whitley Ave willpass under HST	36.09796946130	-119.54176264800	13.70
Ave 152	Tulare		36.06542010680	-119.52751986200	1.65

Street Modification	County	Activity	Latitude	Longitude	Acres
Ave 136	Tulare	Closed connection to the west of SR 43 and retain the connection to the east.	36.03635183970	-119.51189822800	5.24
Ave 128	Tulare	East-west Ave 128 will flare to the south on the west side and cross over the HST, RR, and SR 43 and then curve to the south on the east end and loop around into SR 43.	36.02046646200	-119.50039770400	25.20
Ave 120/Hesse Ave	Tulare	East-west Ave 120 will flare away from road on west to the north in order to cross over the HST, RR, canal, Rd 36, and SR 43 and then curve south to intersect Ave 120 to the east of SR 43.	36.00891508330	-119.49214680400	22.78
Ave 112	Tulare	East-west Ave 112 will flare away north from road on the west to cross over the HST, RR, canal, and SR 43, then curve south to intersect Ave 112 to the east of SR 43.	35.99441811260	-119.48114389000	21.86
Ave 88	Tulare	East-west Ave 88 will flare away south from the existing road on the west to cross over the HST, RR, and SR 43, then curve north to intersect Ave 88 to the east of SR 43.	35.94792580190	-119.44717039000	24.52

Street Modification	County	Activity	Latitude	Longitude	Acres
County Rd J22/Ave 56	Tulare	East-west County Rd J22/Ave 56 will cross over HST along the same alignment of County Rd J22.	35.89128284410	-119.41626394800	24.32
Garces Hwy	Kern	East-west Garces Hwy will cross over the HST along the same alignment as Garces Hwy. A local access road to the east of the HST will be improved for access to parcels.	35.76314909820	-119.39544387700	35.77
Pond Rd	Kern	East-west Pond Rd will cross over HST north of t Pond Rd to reduce the skew of bridge.	35.71823725580	-119.36035795900	47.83
Peterson Rd	Kern	East-west Peterson Rd will cross over HST along the same alignment as Peterson Rd. A local access road to the east of the HST alignment will be added for access to parcels.	35.70315534500	-119.34955436400	24.25
Blankenship Ave	Kern	Closed road	35.66684440980	-119.33437252500	0.37
Taussig Ave	Kern	Closed road	35.65232070480	-119.33194549900	0.59

Street Modification	County	Activity	Latitude	Longitude	Acres
McCombs Aven	Kern	McCombs Ave will shift north and pass over HST, BNSF, and SR 43 and the overcrossing will connect with existing street east of SR 43. The existing intersection between SR 43 and McCombs Ave will be maintained. The BNSF RR crossing will be removed	35.61731018230	-119.33199958800	38.87
Wasco Ave	Kern	closed between Jackson Ave and Kimberlina Rd.	35.56341585000	-119.33112646900	3.90
Kimberlina Rd	Kern	Kimberlina Rd will pass under HST and BNSF RR east of the intersection with SR 43. Existing BNSF RR at-grade crossing will be removed.	35.55812400990	-119.32893569200	11.89
Merced Ave	Kern	Merced Ave will shift north and pass over HST, BNSF, and SR 43. The overcrossing will connect with existing street east of SR 43. The existing intersection between SR 43 and Merced Ave will be maintained.	35.53043822020	-119.30633888600	25.77
Madera Ave	Kern	Closed road	35.52160677290	-119.29501674000	0.28

Street Modification	County	Activity	Latitude	Longitude	Acres
Poplar Ave	Kern	Poplar Ave will pass over HST, BNSF, and SR 43. A new connector will connect Poplar Ave and SR 43 west of HST. The existing BNSF RR will be removed.	35.52117842750	-119.29560556200	24.42
Mettler Ave	Kern	Closed road.	35.51577462530	-119.28476397200	2.29
Fresno Ave	Kern	Fresno Ave will shift south and pass over HST, BNSF, and SR 43 and the overcrossing will connect with existing street east of SR 43. The existing intersection between SR 43 and Fresno Ave will be maintained.	35.51376281400	-119.28736273500	29.03
Burbank St	Kern	Burbank St will pass over HST on a new alignment.	35.47011401020	-119.23473018800	26.95
Santa Fe Way	Kern	Santa Fe Way will be realigned west of HST.	35.46941808120	-119.23437723800	81.47
7th Standard Rd	Kern	7th Standard overcrossing will be raised to provide HST vertical clearance.	35.44127714760	-119.20079163900	14.71

Vehicles:
The Project vehicle type will be an electric multiple unit (EMU) that will equip several train cars, including both end cars, with traction motors, as opposed to a locomotive-hauled train (i.e., one engine in the front and one in the rear). Each train car will have an active suspension and each powered car will have an independent regenerative braking system which returns power to the power system. The body will be made of lightweight but strong materials with an aerodynamic shape to minimize air resistance, much like a curved airplane body.

A train will be nine to 11 feet wide, consisting of one or two trainsets, each approximately 660 feet long and consisting of eight cars. A train of two trainsets will seat up to 1,000 passengers and be approximately 1,320 feet long with 16 cars. The power will be distributed to each train car via the OCS and a pair of pantographs that will reach like antennae above the train to maintain contact with the wires. Each trainset will have a train control system that can be independently monitored with override control while also communicating with the system-wide Operations Control Center. The Project will require up to 94 sets of trains in 2035, depending on the fares charged.

- A computer-based automatic train control (ATC) system will control the trains. The ATC system will provide for Federal Railroad Administration (FRA)-mandated positive train control safety requirements, including safe separation of trains, over-speed prevention, and work zone protection. This will use a radio-based communications network that will include a fiber optic backbone and communications towers approximately every two to three miles, depending on the terrain and selected radio frequency. The towers will be located in the HST Construction Footprint within a fenced area of approximately 20 feet by 15 feet, including a ten-foot-by-eight-foot communications shelter and a six to eight-foot diameter, 100-foot tall communications pole. These communications facilities may be co-located with the traction power substations.

Operation and Maintenance Systems:
Facilities supporting maintenance will be required along the HST ROW. The facilities will consist of one maintenance-of-infrastructure facility and may also include one HMF co-located with an Operations Control Center. The location of the HMF has not yet been identified. The final location may or may not be within the Fresno to Bakersfield section of the HST. Five sites are under consideration for the HMF within the Fresno to Bakersfield section of the HST. The HMF will have connections to highways and utilities on a parcel zoned for heavy industrial activities. If the HMF is located within the Fresno to Bakersfield section of the HST, the Permittee will consult with CDFW to determine the need for an amendment to this ITP or a separate ITP for the HMF well in advance of HMF construction.

Maintenance-of-Infrastructure Facility:
The HST ROW will require accessibility over its entire length for inspection, maintenance, repair, and emergency response. All access to rail and systems for standard maintenance-of-infrastructure will be by track-mounted equipment that runs on its own power (i.e., diesel). Maintenance-of-infrastructure equipment will be stored at a facility immediately adjacent to the HST corridor. Two facilities are to be built for the Project; one in Fresno County south of East American Avenue (part of CP 2-3)(36.65536747680, -119.75160456000) which will be approximately 48.82 acres, and the other will be south of Shafter in Kern County (part of CP 4) (35.45973040570, -119.22276762600) which will be approximately 123.22 acres.

The facilities will include personnel facilities and areas for storage of extra parts for the track and train systems. The maintenance-of-infrastructure facilities will have access to the highway road network and to utilities. The facilities will be approximately 0.75-mile long for a total size of 26 acres, including roads and parking. Access to the facility by road will be required for work crews, along with space to park work crew vans while working from the site. The track and access area will be within the fenced and secured area of the HST ROW. If the Fresno to Bakersfield section of the HST is selected for the HMF, the maintenance-of-infrastructure facilities may be co-located with the HMF. If the HMF is built outside of the Fresno to Bakersfield section of the HST, the maintenance-of-infrastructure facility for the Project would still be constructed at the Fresno County and the Kern County locations referenced above.

Maintenance-of-Infrastructure Siding (MOIS):
The Maintenance-of-Infrastructure Siding facility will be centrally located (36.02636774660, -119.505240335); it will be approximately 5.91 acres within the 75 mile maintenance section between the Fresno Maintenance-of-Infrastructure Facility and the Shafter Maintenance-of-Infrastructure Facility. The purpose of these facilities is to support the Maintenance-of-Infrastructure (MOIF) activities by providing a location for layover of maintenance-of-infrastructure equipment and temporary storage of materials and other resources needed in the adjacent section to the north and south respectively.

Construction Footprint Operations, Maintenance, and Inspection (O&M) Activities

Operation:

- Train Service: Three categories of trains will ultimately be operated within the Project: express trains, limited-stop trains, and frequent-stop trains. After construction of California HST segments not covered by this ITP, express trains will run between major stations of the California HST (e.g., San Francisco, Los Angeles, and San Diego). Express trains will not stop within the Project and will travel through the Project on dedicated through-tracks. Limited-stop trains will provide service to some intermediate stations, as well as to the major stations. Frequent-stop trains will be spaced at least three minutes apart and will focus on regional service.

  Within the Project, the maximum train operating speed will be 220 mph. Trains will be in service from 5 a.m. at the earliest to before midnight at the latest. Six trains per hour coming from each direction will move through the Project Area during peak periods. During off-peak periods, the same number of stops will be made, but the number of through trains would drop to three per hour.

- Lighting: The HST ROW will not be lighted except at stations and associated maintenance and electrical facilities. Maintenance and electrical facilities will have

permanent lighting for both interior and exterior areas, as needed to support operations; some facilities will require lighting 24 hours per day. Exterior lights will be mounted on tall masts, towers, or poles and illuminate the area with sodium or mercury-vapor light. The lights will be angled toward the ground to limit reflectance on the surrounding community. Specifics such as height, type and amperage of the lights are yet to be determined. It will not be required to continuously light all system facilities for security, but lighting will be more likely in urban areas to discourage graffiti, vandalism or trespass. Permittee will determine site-specific conditions and requirements by each location. Many of the sites will require closed circuit television coverage, so some level of lighting will be required to support surveillance.

Maintenance and Inspection:
Permittee will regularly perform maintenance and inspection within the permanent ROW portion of the Construction Footprint to verify that the HST and components are functioning as required. Permittee will maintain and inspect the track, ROW, power systems, train control, signalizing, communications, and other vital systems required for the safe operation of the HST.

Operational maintenance will require vegetation control throughout the HST ROW through a variety of methods, including the application of Caltrans-approved herbicides. Pesticide application will be applied in accordance with all requirements of the California Department of Pesticide Regulation and County Agricultural Commissioners by certified pesticide applicators. To prevent primary and secondary poisoning of State-listed species or the depletion of their prey base, the use of herbicides will be restricted and will only be applied to the disturbed HST ROW. Application of the herbicides will be applied in accordance with the compound label and "other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation.

- Track and ROW: The track will be inspected at any point several times a week, using measuring and recording equipment aboard special measuring trains featuring a design similar to that of the regular trains but operating at lower speed. These trains will be run between midnight and 5 a.m. and will pass over any given section of track once during the night.

  Most adjustments to the track and routine maintenance will be accomplished in a single night at any specific location with crews and material brought by work trains along the alignment. When rail resurfacing is needed, approximately several times a year, specialized equipment will pass over the track section at five to ten mph.

  Approximately every four to five years, ballasted track will require sections of more intensive maintenance of the track and structure using trains with a succession of

specialized cars to raise, straighten, and tamp the track and vibrating "arms" used to move and position the ballast under the ties. The train will cover a mile-long section of track in the course of one night's maintenance. Slab track at elevated sections will not require this activity.

Other maintenance of the ROW, aerial structure, and bridge sections of the alignment will include drain cleaning, vegetation control, litter removal, and other inspection that will occur monthly to several times a year.

- Power: The OCS will be inspected nightly with repairs being made when needed, which will typically be accomplished in one night's maintenance window. Other inspections will occur monthly. Many of the functions and status of substations and the smaller facilities outside of the rail will be remotely monitored, and visits will only be made to repair or replace minor items, and several times a month to check the general site.

- Structures: Visual inspections of the structures along the ROW and testing of fire and life safety systems and equipment in or on structures will occur monthly, while inspections of all structures for structural integrity will occur at least annually. Steel structures will require painting every several years. For tunnels and buildings, repair and replacement of lighting and communication components will be performed on a routine basis.

- Signaling, Train Control, and Communications: In-field inspection and testing of the signaling and train control components will occur four times a year using hand-operated tools and equipment. Communications components will be routinely inspected and maintained, usually at night, although daytime work may occur if the work area is clear of the track.

- Perimeter Fencing and Intrusion Protection: Fencing and intrusion protection systems will be remotely monitored, as well as periodically inspected. Maintenance will occur as needed.

Fagundes Compensatory Mitigation Site Construction Elements:
Permittee will conduct riparian and wetland restoration at the Fagundes Compensatory Mitigation Site (Mitigation Site). The Mitigation Site consists of two parcels along Cross Creek: Parcel A, which is approximately 250 acres, and Parcel B, which is approximately 155 acres. The Mitigation Site is located approximately 12 miles northwest of the city of Visalia, five miles east of the city of Hanford, and 18 miles northeast of the SR 43/Cross Creek area (Figure 12). These two parcels are surrounded by agricultural lands, and support grassland habitat with scattered vernal pool complexes. Both parcels are currently used as

pasture land for cattle. Cross Creek, which flows intermittently with surface water and irrigation tailwater, forms the southern border for both parcels. Construction activities at the Mitigation Site will consist of establishment (creation) of up to 8.7-acres of vernal pools (areas of vernal pool creation are called the Wetland Restoration Area), and a 5.6-acre Riparian Restoration Area. Preservation of a 14.7-acre riverine habitat along Cross Creek will also occur, though this will not involve any construction activities. There will also be 1.51 acres of temporarily impacted areas that will consist of up to 0.76-acres of Inoculum Collection Areas (e.g. areas within the Mitigation Site where inoculum would be collected), a 0.25 acre temporary staging area for the riparian restoration, and a 0.5 acre temporary staging area for the vernal pool establishment (Figure 12). The 0.76 acres of Inoculum Collection Areas will be located in the various existing vernal pools present on the Mitigation Site.

Restoration (construction) activities at the Mitigation Site will be completed within 18 months of the start of restoration (construction) at the Mitigation Site, as documented in the Notification Before Commencement submitted pursuant to Condition of Approval 8.20. The restoration activities that will occur at the Mitigation Site include:

- Land Grading and Contouring: Land grading and contouring will occur only within the Wetland Restoration Area, where vernal pools will be created. The vernal pools created within the Wetland Restoration Area will be designed to mimic historical vernal pool habitat present within the Wetland Restoration Area. Vernal pool slopes will be constructed to mimic side slopes of natural vernal pools in the design reference site, which will be selected from a location(s) within the Mitigation Site. Vernal pool slopes will range from approximately two percent to six percent, with a targeted average of approximately three percent. The density of vernal pools is expected to be approximately 15 percent of the total restored acreage, which is similar to the vernal pool density in the design reference site.

  Excavation depths will vary for each created vernal pool and will be determined by created vernal pool size, shape, slope, and position. Created vernal pools will include topographic outlet features that will limit ponding depth to better mimic the natural features in the adjacent vernal pool landscape. Created vernal pool depths will range from four to 15 inches.

  The following vernal pool construction process will be implemented:

  - Within the 8.7-acre Wetland Restoration Area, the top three to four inches of topsoil will be scraped down and salvaged where feasible. The salvaged topsoil will be stockpiled in an adjacent area for reapplication in restored upland areas around the created vernal pools.

- Pools will be created via excavation and contoured according to the grading plan to an elevation approximately three inches below the final design elevation.

- Excavated soils will be distributed around the created vernal pool margins and contoured to mimic natural mima-mound topography and to establish hydrological interconnectivity between individual created pools consistent with the adjacent design reference site.

- The junction between created vernal pool boundaries and upland areas will be graded and contoured to ensure a smooth, natural, wetland-upland transition.

- Stockpiled topsoil will be redistributed across the Wetland Restoration Area, including vernal pools and mounds, to provide a good substrate for plant establishment and growth.

- No soil will be disposed of off-site. Exposed soil will be reseeded with naturalized plant seed appropriate to the site to minimize erosion and invasive plant establishment.

- Inoculum will be collected from up to 0.76 acres of natural vernal pools within the Inoculum Collection Area only and distributed within the created vernal pool basins.

- Final finish grading will be performed for an overall natural, smooth contour for the created vernal pools and mounds. Sufficient soil will be left above the hardpan for proper propagation potential for establishment of vernal pool plants (minimum of two inches).

- Staging Areas: Development of the Wetland Restoration Area will require the temporary establishment of a 0.5-acre Staging Area, located off the major gate/ranch road at 36.400814, -119.488886 (Figure 12), to provide a storage and laydown area to support vernal pool creation. Similarly, development of the Riparian Restoration Area will require the temporary establishment of a 0.25 acre Staging Area located at 36.386506, -119.504377 (Figure 12). These two staging areas within the Mitigation Site are collectively referred to as the Staging Areas.

- Wetland Vegetation Establishment, Inoculum Collection, and Inoculation: Created vernal pools will be inoculated with a mix of soil, seeds, and organic material collected from up to two acres of natural vernal pools in the Inoculum Collection Area.

  To select vernal pools for inoculum collection, vernal pools will be divided into four tiers. The first three tiers will include vernal pools supporting federally-listed large

branchiopods. Among these vernal pools, those that are deeper, with a high density of vernal pool indicator species, will be harvested first (Tier 1). If more inoculum is needed, it will be collected from vernal pools with a moderate density of vernal pool indicator species (Tier 2). If more inoculum is still needed, it will be collected from vernal pools with a low density of vernal pool indicator species (Tier 3). If yet more inoculum is needed, it will be collected from additional natural vernal pools that support a high to moderate density of non-listed vernal pool indicator plants and large branchiopods.

Inoculum will not be collected from vernal pools known to support non-native invasive flora (as defined, described, and inventoried as invasive by the California Invasive Plant Council with the exception of *Hordeum marinum, H. murinum, Hypochaeris glabra, Lolium multiflorum, Lythrum hyssopifolium, Plantago lanceolata*, and *Rumex crispus*) and fauna species (e.g., American bullfrog [*Lithobates catesbeianus*]) that could pose a threat to vernal pool vegetation or invertebrate communities. Inoculum will also not be collected from vernal pools known to support or found to support succulent owl's-clover (*Castilleja campestris spp. succulenta*) or other State-listed plants.

Inoculum collected from vernal pools with documented vernal pool fairy shrimp (*Branchinecta lynchi*) will be stockpiled separately and placed in shallow, created vernal pools that provide the preferred habitat for that species. Inoculum collected from vernal pools with documented vernal pool tadpole shrimp (*Lepidurus packardi*) will also be stockpiled separately and placed into deeper, created vernal pools that provide the preferred habitat for that species.

Inoculum will be collected manually or by using a small, rubber-tired tractor to minimize disturbance to the pool site. Inoculum will only be collected when pools are naturally and completely dry (soils hard and no longer saturated).

A maximum of ten percent of each donor vernal pool's area will be used for inoculum collection. Inoculum will be collected from no greater than one-inch in depth to minimize disturbance to the donor vernal pools. Once inoculum is collected from a vernal pool, any scraped areas will be smoothed out.

- Silt Fencing: Silt fencing may temporarily be established along the portions of the perimeter of the Wetland Restoration Area, where remnant on-site swales provide the potential for sediment runoff. If needed, silt fencing will be installed prior to vernal pool creation activities. The silt fencing will consist of standard woven black fabric attached to wooden stakes and buried approximately six inches in the ground. If needed, straw wattles will be placed adjacent to the silt fencing or along swales to capture sediments.

These materials will be removed after one to two rainy seasons, depending on the extent of re-establishment of vegetation on the site.

Permittee will conduct riparian and riverine restoration and enhancement along the existing Cross Creek riparian corridor. Restoration of riparian cover will involve planting the appropriate riparian species (based on the species currently growing in the area), irrigating during plant establishment, and installing riparian exclusion fencing or fencing around plantings to protect them from cattle grazing after planting as established in the long-term management plan. Native riparian cover would be re-established by obtaining canes from donor trees (e.g., willow, cottonwood, valley oak, other native riparian trees, associated native shrubs) either onsite or within the Cross Creek watershed (maximum of ten canes per tree), a suitable ancillary collection site, or sourced from local nurseries with native species in containers. The constraints required for grazing will be described as part of the long-term management plan to ensure that grazing does not conflict with restoration and enhancement goals.

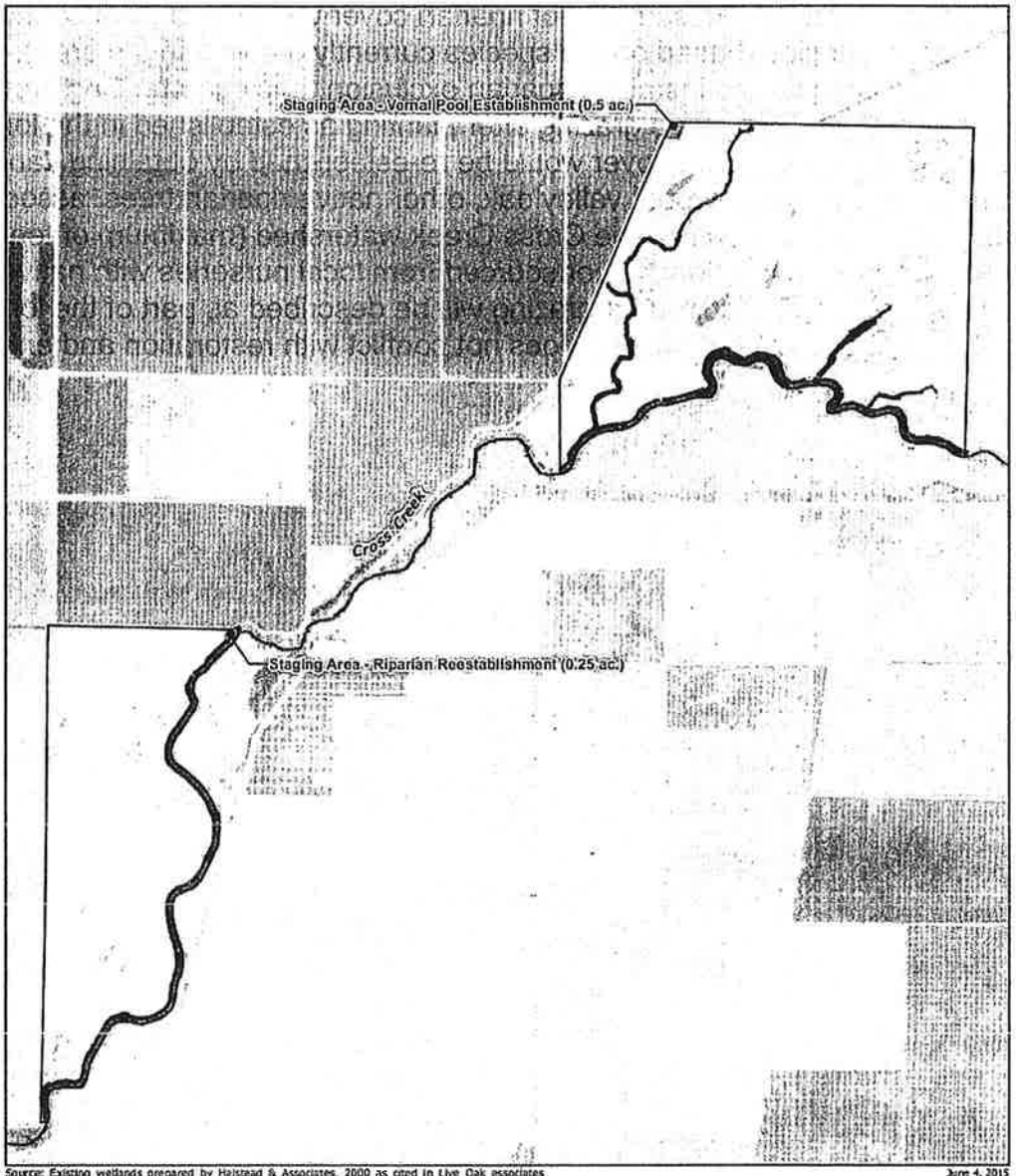

Figure 12
Fagundes Compensatory Mitigation Site

Riparian Restoration:
Riparian habitat restoration would occur on 5.6 acres of riparian and 14.7 acres of riverine habitat along Cross Creek (Figure 12). These activities would be accomplished by obtaining canes from donor trees (e.g., willow, cottonwood, valley oak, other native riparian trees, and associated native shrubs) either onsite or within the Cross Creek watershed. A maximum of ten canes per tree will be collected. It will be approximately 1,300 trees, 100 trees per acre in the riparian and 50 trees per acre in the riverine areas. Nursery container plants will be used to supplement if needed. Collection will occur between November and February.

Water required to support initial planting growth will be obtained from existing wells and will rely on existing water rights. Establishment of plantings will require three years, after which it is expected that the plantings will have reached the water table. Watering amounts may need to be adjusted based on annual site conditions/rainfall. In year one, 70 gallons per tree, year two, 48 gallons per tree, and in year three, 40 gallons per tree. Holes for planting will be augured using a small tractor with an attached auger to a maximum depth of five feet. A temporary irrigation system using aboveground plastic pipes to supply drip irrigation to the riparian plantings will also be installed and connected to the well(s). The installation of the temporary irrigation system will be monitored by a qualified biologist to verify there are no impacts on sensitive resources. The biologist will have the authority to stop work to ensure that impacts on sensitive resources are avoided. Installation of the system will be done by hand, using a utility truck to transport pipe to the restoration area. The temporary irrigation system will be removed when riparian plantings are sufficiently established and irrigation is no longer needed. Maintenance of the system will occur as necessary, with the system removed within two to three seasons after the first planting season.

Construction Methods:
Vernal pool creation work in the Wetland Restoration Area will be performed during late summer and early fall, when natural vernal pools on the site are dry (approximately June 1 to October 15); restoration work will be supervised and monitored by a qualified biologist. Application of inoculum will occur either during construction activities or during the final phase of construction of the created vernal pools before winter rains. It is anticipated that all ground-disturbing activities for wetland restoration would be conducted using the following heavy equipment:

- Backhoe (contouring and grading for vernal pool creation).
- Grader (contouring and grading for vernal pool creation).
- Small dozer (contouring and grading for vernal pool creation).
- Paddle-wheel scraper (contouring and grading for vernal pool creation).
- Dump truck (two, for transporting inoculum and moving local fill for vernal pool creation).

- Water truck (for dust control and inoculum watering to ensure inoculum is retained onsite).
- Landscape tractor (contouring and grading for vernal pool creation).
- Gannon box or harrow (inoculum collection).

Riparian restoration activities will be conducted primarily in the fall (October to December), before the winter rainy season. These activities will be limited to the use of hand tools, an auger mounted on a small tractor, and personal and light-duty trucks to transport and plant riparian trees and shrubs. The area will be mowed or grazed but not scraped or otherwise cleared at the start of the planting activities. Irrigation is required immediately after planting and for two or three seasons after planting. As an alternative or supplement to the proposed temporary irrigation system, a water truck may be used to transport onsite well water, as required, during the dry season from late spring through late fall. All work will be limited to those areas along the river channel corridor where planting is deemed to have the greatest opportunity for success and that will provide the greatest benefit. During restoration activities on each site, equipment will be staged and stored within a designated area of approximately 0.25 acres (100 feet by 100 feet), located at 36.386506, -119.504377 (Figure 12), outside of the created and existing waterbodies and riparian corridor.

Covered Species Subject to Take Authorization Provided by this ITP:

This ITP covers the following species:

Name	CESA Status
1. California tiger salamander (*Ambystoma californiense*)	Threatened[3]
2. Tipton kangaroo rat (*Dipodomys nitratoides nitratoides)*	Endangered[4]
3. San Joaquin antelope squirrel (Ammospermophilus nelsoni)	Threatened[5]
4. Swainson's hawk (*Buteo swainsoni*)	Threatened[6]
5. San Joaquin kit fox (*Vulpes macrotis mutica*)	Threatened[7]

[3]See Cal. Code Regs. tit. 14 § 670.5, subd. (b)(3)(G).
[4]See Cal. Code Regs. tit. 14 § 670.5, subd (a)(6)(D).
[5]See Cal. Code Regs. tit. 14 § 670.5, subd (b)(6)(B).
[6]See Cal. Code Regs. tit. 14 § 670.5, subd (b)(5)(A).
[7]See Cal. Code Regs. tit. 14 § 670.5, subd (b)(6)(E).

These species and only these species are the "Covered Species" for the purposes of this ITP.

Impacts of the Taking on Covered Species:
This ITP covers all Project related activities that cumulatively disturb no more than 5,868 acres within the Construction Footprint and no more than 17.32 acres at the Mitigation Site (collectively, the Project Area). Project activities are more fully described in the Project Description of this ITP and include subsurface geotechnical drilling and boring; habitat grubbing, vegetation removal, clearing, and mass grading followed by the mobilization of equipment and materials; earthwork including construction of temporary and permanent excavation support structures; excavation of open cut slope and fill, at grade profile excavation and leveling, and retained fill cut, rail bed foundation soil compaction, and elevated profiles and elevated profile structure components including construction and installation of straddle bents, foundations, pile caps, substructures, and superstructures; trench digging and other subsurface utility installation, relocation, and protection; pad preparation and construction of a batch plant, materials storage, fabrication, casting areas, access roads, and staging areas; rotary drilled reinforced concrete cast in place pile and drive pile installation; excavation of drainage swales and fabrication and installation of underground drainage culverts and pipes; 86 roadway modifications including realignment and resurfacing, construction of new access roads, overcrossing, and undercrossing; construction of waterway crossing structures over the Kings River Complex, Cross Creek, Tule River, Deer Creek, Poso Creek, and other watercourse crossings, partial dewatering and diversion of water; construction and assembly of tie and ballast and slab track railway systems, and shoofly track; erecting mast poles; construction of electrical systems facilities including the OCS, nine TPSS, up to nine switching stations, and up to 27 paralleling stations; construction of signal huts and bungalows including installation of cabling to the field hardware and track stations; traction electrification; excavation and construction of wildlife crossings, construction of the Kings/Tulare Regional Station; construction of a maintenance-of-infrastructure facility; installation of AD and AR fence; construction of temporary job site trailers and field offices including the development of building pads and preparation of parking areas; application of dust suppressants; operation and maintenance activities such as track, power, structure, signaling, train control, communications, intruder, and right-of way inspection and repair; equipment staging, mowing, inoculum collection, land grading, and excavation of wetlands at the Mitigation Site; and hand tool or auger planting of trees and shrubs, and other activities within the Construction Footprint and Mitigation Site described in the Project Description section of this ITP. All these Project activities are collectively referred to as the Covered Activities.

California Tiger Salamander
The extent of the impacts of the taking of CTS is based on the vegetation cover types within the Construction Footprint, the assumption that all potentially suitable habitat in the

Construction Footprint would be permanently destroyed, and an evaluation of indirect impacts. The Covered Activities are expected to result in the permanent loss of up to 9.06 acres of upland refugia habitat and loss of 9.64 acres of aquatic breeding habitat for CTS. Grading and excavation during the non-breeding (dry) season at the Mitigation Site would also result in up to 17.32 acres of temporary impacts to CTS habitat; of that 17.32 acres, 0.76 acres is breeding habitat (vernal pools). Covered Activities at the Mitigation Site are intended to and will likely enhance the habitat at the Mitigation Site for CTS. Covered Activities may result in the incidental take of individuals in the form of mortality ("kill") as a result of habitat loss and modification; Project-related ground and vegetation disturbance; vehicle and equipment strikes during site preparation and hauling of materials and spoils; crushing by heavy equipment and foot traffic; collapse or excavation of occupied burrows that results in crushing or suffocation of underground individuals; entombment of individuals from deposition of stockpiled material or spoils over occupied burrows; entrapment and burial within trenches and open pipelines; entombment during earthwork; entanglement in fences or in construction staging materials; increased light, noise, and vibration from human and construction activity that could cause individuals to become active at inappropriate times, potentially increasing stress levels and exposure to predation and adverse environmental conditions; temporary displacement; and during habitat restoration in the excavation and construction of wetlands, installation of barbed wire fencing to control cattle grazing activities, planting of riparian species, management, and monitoring. Incidental take of individuals may also occur from the Covered Activities in the form of catch, capture or attempt to do so from falling into trenches and during trapping and relocation of individuals from the Construction Footprint (salvage).

Potential indirect impacts to CTS and its habitat include effects of construction activities associated with Covered Activities. These indirect effects could include complications from construction-related fugitive dust; pesticide application that could affect individuals individually or through their food sources; altered behavior resulting from Covered Activities in occupied areas; and the possibility for disease transmission to CTS from handling and relocation efforts.

Potential long-term indirect impacts to CTS associated with Covered Activities include: continued noise and vibration impacts from the routine operation and maintenance of the Project components; changes in the habitat that make CTS more vulnerable to competition, disease, or predation; introduction or spread of invasive species; increased habitat fragmentation and edge effects; pesticide use; stress through disorientation; loss of foraging opportunities; and road-building and other soil disturbance upstream or at elevations upslope of CTS habitat that could result in altered drainage patterns and reduced input of water necessary to create and maintain appropriate soil moisture, vegetation cover, and humidity requirements. Individuals displaced due to habitat loss and degradation may be unable to survive in adjacent areas if these areas are already at carrying capacity or are unsuitable for colonization.

Table 9. Covered Species Habitat Impacts

Covered Species	Habitat Type	Impact Type	Impact Acres
California tiger salamander	Upland refugia (annual grassland, pasture, barren, fallow field, inactive agriculture, and ruderal) Aquatic breeding (vernal pool, open water, seasonal wetland)	Permanent	18.70
	Upland refugia (annual grassland at Mitigation Site)	Temporary	16.56
	Breeding habitat (vernal pools at Mitigation Site)	Temporary	0.76
		Total	17.32
Tipton kangaroo rat	Annual grassland, Alkali desert scrub, barren, pasture, and inactive agriculture	Permanent	148.95
San Joaquin Antelope squirrel	Annual grassland, Alkali desert scrub, barren, and pasture	Permanent	62.03
Swainson's hawk	Foraging (California annual grassland, pasture, barren, fallow field, inactive agriculture, ruderal, field crops, row crops, and irrigated hay crops)	Permanent	2,045.54
	Foraging (annual grassland at Mitigation Site)	Temporary	17.32
	Nesting (riparian and eucalyptus woodland and individual trees)	Permanent	5 nesting tree(s)
San Joaquin kit fox	Alkali desert scrub, annual grassland, barren, pasture, fallow field, inactive agriculture, ruderal, field crops, row crops, and irrigated hay crops	Permanent	3,446.20
	Foarging and denning (annual grassland at Mitigation Site)	Temporary	17.32

Tipton kangaroo rat:

The extent of the impacts of the taking of Tipton kangaroo rat (TKR) is based on the amount of vegetation cover types that could function as TKR foraging, burrowing, and breeding habitat within the Construction Footprint, the assumption that all potentially suitable habitat in the Construction Footprint would be permanently destroyed, and an evaluation of Project indirect impacts. The Covered Activities are expected to result in the permanent loss of up to 148.95 acres of potential habitat (Table 9).

Covered Activities could result in incidental take of TKR in the form of mortality ("kill") as a result of: vehicles strikes; crushing by heavy equipment; collapse of burrows; entombment during earthwork; being crushed in shallow burrow systems, noise and ground vibration, and exposure to predation and adverse environmental conditions; and entanglement in fences or in construction staging materials. Incidental take of individual TKR may also occur from the Covered Activities in the form of catch, capture or attempt to do so from falling into trenches, excavated holes, pix 0pes, and open pipelines and during burrow excavation activities required to reduce the potential for direct mortality.

Potential indirect impacts to TKR and their habitat include effects of construction activities associated with implementation of Covered Activities. These include: stress resulting from construction-related noise and lighting; ground vibration; fugitive dust; habitat loss and modification; introduction and spread of invasive species; pesticide use, temporary displacement, stress resulting from capture and relocation, increased competition for food and space and increased vulnerability to predation.

Potential long-term indirect impacts associated with Covered Activities include foraging habitat loss, fragmentation and degradation, including that caused by the spread or introduction of invasive species, increased light, and increased noise.

San Joaquin Antelope squirrel:

The extent of the impacts of the taking of San Joaquin antelope squirrel (SJAS) is based on the amount of vegetation cover types that could function as SJAS foraging, burrowing, and breeding habitat within the Construction Footprint, the assumption that all potentially suitable habitat in the Construction Footprint would be permanently destroyed, and an evaluation of Project indirect impacts. The Covered Activities are expected to result in the permanent loss of up to 62.03 acres of potential habitat (Table 9).

Covered Activities could result in incidental take of SJAS in the form of mortality ("kill") as a result of: vehicles strikes; crushing by heavy equipment; collapse of burrows; entombment during earthwork; being crushed in shallow burrow systems, noise and ground vibration, and exposure to predation and adverse environmental conditions; and entanglement in fences or in construction staging materials. Incidental take of individual SJAS may also occur from the

Covered Activities in the form of catch, capture or attempt to do so from falling into trenches, excavated holes, pipes, and open pipelines and during burrow excavation activities required to reduce the potential for direct mortality.

Potential indirect impacts to SJAS and their habitat include effects of construction activities associated with implementation of Covered Activities. These include: stress resulting from construction-related noise and lighting; ground vibration; fugitive dust; habitat loss and modification; introduction and spread of invasive species; pesticide use, temporary displacement, stress resulting from capture and relocation, increased competition for food and space and increased vulnerability to predation due to disruption to social communication.

Potential long-term indirect impacts associated with Covered Activities include foraging habitat loss, fragmentation and degradation, including that caused by the spread or introduction of invasive species, increased light, and increased noise.

Swainson's Hawk:

Up to 2,045.53 acres of foraging habitat, including areas within active agricultural production, and five nest trees for Swainson's hawk (SWHA) could be permanently impacted as a result of Covered Activities. In addition, grading and excavation at the Mitigation Site would also result in up to 17.32 acres of temporary impacts to SWHA foraging habitat (Table 9). It is expected that all potentially suitable habitat (2,045.53 acres) within the Construction Footprint would be permanently destroyed. Based on the results of baseline surveys conducted within the Construction Footprint in spring 2013, there are five known SWHA nest trees within 0.5-miles of the Construction Footprint (Table 10). The foraging habitat impact acres were determined based on these five nest trees along with the guidelines set forth in the *Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (Buteo swainsoni) in the Central Valley of California* (CDFW, 1994).

Covered Activities may result in incidental take of individuals in the form of mortality ("kill") as a result of vehicle strikes due to increased Project-related traffic and as a result of the loss of young, fledglings, or eggs due to destruction of nests or abandonment of nests if construction or grading activities occur in close proximity to nests during the SWHA nesting season. Direct impacts to foraging habitat could also affect migrating individuals and the fitness of SWHA young raised in close proximity to the Project, due to reduced foraging opportunities and because forage acquired further away from the nest is more energetically expensive for parents acquiring food for their dependent young. In addition, the removal of habitat during the nonbreeding season could result in a loss of reproductive productivity in subsequent years.

Potential indirect impacts to SWHA and their habitat include effects of construction activities associated with implementation of Covered Activities. These include: construction-related

noise; ground vibration; fugitive dust; habitat loss and modification; introduction or spread of invasive species; and increased human activity which could result in a reduction in prey abundance and/or availability. Noise and vibration could cause physiological and/or behavioral disruptions that may interfere with breeding, result in nest abandonment, and a loss of fitness in dependent young resulting from interruptions to brooding and/or feeding schedules.

Potential long-term indirect impacts associated with Covered Activities include: nesting and foraging habitat fragmentation; nesting and foraging habitat degradation including that caused by the introduction or spread of invasive species; increased light; and increased noise and vibration. O&M of the Project could indirectly affect nesting SWHA through noise and increased human activity. Nesting and migrating SWHA could be affected by pesticides used during Covered Activities, most likely through ingestion of contaminated prey. The Project could increase predation potential by providing perching sites for avian predators (e.g., crows and other raptors), which can be predators of SHWA eggs and young.

Table 10. Known Locations of Swainson's Hawk Nests Near Construction Footprint

County	Latitude	Longitude
Kings	36.06970257000	-119.53715868000
Tulare	36.04990208000	-119.52613638000
Tulare	36.04044697000	-119.50881765000
Tulare	36.04032774000	-119.51309984000
Tulare	35.99005676000	-119.47873215000

San Joaquin Kit Fox:

The extent of the impacts of the taking of San Joaquin kit fox (SJKF) is based on the amount of vegetation cover types that could function as SJKF foraging, denning, and breeding habitat within the Construction Footprint, the assumption that all potentially suitable habitat in the Construction Footprint would be permanently destroyed, and an evaluation of Project indirect impacts. The Covered Activities are expected to result in the permanent loss of up to 3,446.20 acres of potential habitat (Table 9). Grading and excavation at the Mitigation Site would also result in up to 17.32 acres of temporary impacts to SJKF habitat.

Covered Activities could result in incidental take of SJKF in the form of mortality ("kill") as a result of: vehicles strikes; crushing by heavy equipment; collapse of dens; entombment during earthwork; noise and ground vibration that could cause SJKF to leave dens at inappropriate times, potentially increasing their stress levels and exposure to predation (e.g., by urban-related predators such as dogs and mesopredators such as coyotes) and adverse environmental conditions; and entanglement in fences or in construction staging materials. Incidental take of individual SJKF may also occur from the Covered Activities in the

form of catch, capture or attempt to do so from falling into trenches, excavated holes, pipes, and open pipelines and during den excavation activities required to reduce the potential for direct mortality.

Potential indirect impacts to SJKF and their habitat include short-term effects of construction activities associated with implementation of Covered Activities. These include: construction-related noise and lighting; ground vibration; fugitive dust; habitat loss and modification; introduction and spread of invasive species; pesticide use and increased human activity which could result in a reduction in prey abundance; and altered behavior resulting from Project disturbance in occupied habitat areas, including physiological and behavioral disruptions that could interfere with denning, foraging, and reproduction.

Potential long-term indirect impacts associated with Covered Activities include foraging habitat loss, fragmentation and degradation, including that caused by the spread or introduction of invasive species, increased light, and increased noise.

Incidental Take Authorization of Covered Species:

This ITP authorizes incidental take of the Covered Species and only the Covered Species. With respect to incidental take of the Covered Species, CDFW authorizes the Permittee, its employees, contractors, and agents to take Covered Species incidentally in carrying out the Covered Activities, subject to the limitations described in this section and the Conditions of Approval identified below. This ITP does not authorize take of Covered Species from activities outside the scope of the Covered Activities, take of Covered Species outside of the Project Area, take of Covered Species resulting from violation of this ITP, or intentional take of Covered Species except for capture and relocation of Covered Species as authorized by this ITP.

Conditions of Approval:
Unless specified otherwise, the following measures apply to all Covered Activities within the Project Area, including areas used for vehicular ingress and egress, staging and parking and noise and vibration generating activities that may/will cause take. CDFW's issuance of this ITP and Permittee's authorization to take the Covered Species are subject to Permittee's compliance with and implementation of the following Conditions of Approval:

1. **Legal Compliance:** Permittee shall comply with all applicable federal, state, and local laws in existence on the effective date of this ITP or adopted thereafter.

2. **CEQA Compliance:** Permittee shall implement and adhere to the mitigation measures related to the Covered Species in the California High-Speed Train Fresno to Bakersfield Section Final Project Environmental Impact Report/Environmental Impact Statement (EIR/EIS) (SCH No.:2009091126) certified by The California High-Speed

Rail Authority on May 7, 2014 as lead agency for the Project pursuant to the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.).

3. **LSA Agreement Compliance:** Permittee shall implement and adhere to the mitigation measures and conditions related to the Covered Species in the Lake and Streambed Alteration Agreement (LSAA) (Notification No. 1600-2015-0033-R4 (Fresno-Bakersfield), and 1600-2013-0060-R4 (Merced-Fresno)) for the Project and executed by CDFW pursuant to Fish and Game Code section 1600 et seq.

4. **ESA Compliance:** Permittee shall implement and adhere to the terms and conditions related to the Covered Species in the Biological Opinion of the California High-Speed Train System: Fresno to Bakersfield Section Project, Kern, Kings, Tulare, and Fresno Counties (Biological Opinion No. 08ESMF00-2012-F-0247, or as amended if applicable) for the Project pursuant to the Federal Endangered Species Act (ESA). For purposes of this ITP, where the terms and conditions for the Covered Species in the federal authorization are less protective of the Covered Species or otherwise conflict with this ITP, the Conditions of Approval set forth in this ITP shall control.

5. **ITP Time Frame Compliance:** Permittee shall fully implement and adhere to the conditions of this ITP within the time frames set forth below and as set forth in the Mitigation Monitoring and Reporting Program (MMRP), which is included as Attachment 1 to this ITP.

6. **General Provisions:**

   6.1. Designated Representative. Before starting Covered Activities, Permittee shall designate a representative (Designated Representative) responsible for communications with CDFW and overseeing compliance with this ITP. Permittee shall notify CDFW in writing before starting Covered Activities of the Designated Representative's name, business address, and contact information, and shall notify CDFW in writing if a substitute Designated Representative is selected or identified at any time during the term of this ITP.

   6.2. Biological Monitor(s). Permittee shall submit to CDFW in writing the name, qualifications, business address(es), and contact information of each proposed Biological Monitor(s) [Designated Biologist(s) and General Biological Monitor(s)] at least 30 days before starting Covered Activities. Permittee shall obtain CDFW approval of the Biological Monitor(s) in writing before starting Covered Activities, and shall also obtain written approval in advance if any of the Biological Monitor(s) must be changed. CDFW may approve Biological Monitor(s) for specific areas of the Project, for specific Covered Species, or for

specific timeframes as applicable. The Biological Monitor(s) shall monitor all ground and vegetation disturbing Covered Activities.

6.2.1 Designated Biologist(s). Permittee shall ensure that each Designated Biologistis knowledgeable and experienced in the biology, natural history, collecting, and handling of the applicable Covered Species. The Designated Biologist may be approved by CDFW on a species specific basis, and in those cases will only be authorized to complete surveys and monitoring of the Covered Species for which they are specifically approved. The Designated Biologists shall be responsible for conducting all activities specific to a Covered Species including initial surveys and any handling or other actions necessary if individuals of Covered Species are found in the Project Area. The Designated Biologists shall be responsible for supervising the General Biological Monitors. At least one Designated Biologist for each Covered Species will be present within the Project Area during initial vegetation and soil disturbance monitoring required by Condition of Approval 7.3.

6.2.2 General Biological Monitor(s). General Biological Monitor(s) are biologists with general roles and technical responsibilities. General Biological Monitors may be used instead of Designated Biologist(s) only for general monitoring activities within each discreet area of the Project under active construction (Work Area), and only after initial site disturbance in that particular Work Area has occurred under the supervision of a Designated Biologist(s). General Biological Monitors must be experienced in the general biology, natural history, and identification of the applicable Covered Species. The General Biological Monitors may be approved by CDFW on a species-specific basis, and in those cases will only be authorized to complete surveys and monitoring of the Covered Species for which they are specifically approved. The General Biological Monitors shall receive training and direct supervision from the Designated Biologist(s) for each task performed. The General Biological Monitor(s) shall communicate daily with the Designated Biologist(s) and shall immediately report any occurrence of Covered Species within the Project Area or buffer areas, as well as any apparent non-compliance with any provision of this ITP.

6.3. Biological Monitor Authority. To ensure compliance with the Conditions of Approval of this ITP, all Biological Monitors shall have authority to immediately stop any activity that does not comply with this ITP, and/or to order any

reasonable measure to avoid the unauthorized take of an individual of the Covered Species.

6.4. Education Program. Permittee shall conduct an education program for all persons employed or otherwise working in the Project Area before performing any Covered Activities. The program shall consist of a presentation from the Designated Biologist(s) that includes a discussion of the biology and general behavior of the Covered Species, information about the distribution and habitat needs of the Covered Species, sensitivity of the Covered Species to human activities, its status pursuant to CESA including legal protection, recovery efforts, penalties for violations and Project-specific protective measures described in this ITP. Permittee shall provide interpretation for non-English speaking workers, and the same instruction shall be provided to any new workers before they are authorized to perform Covered Activities in the Project Area. Permittee shall prepare and distribute wallet-sized cards or a fact sheet handout containing this information for workers to carry in the Project Area. Upon completion of the program, employees shall sign a form stating they attended the program and understand all protection measures. This training shall be repeated at least once annually for long-term and/or permanent employees that will be conducting Covered Activities in the Project Area.

6.5. Construction Monitoring Notebook. The Designated Biologist(s) shall maintain a construction-monitoring notebook on-site throughout the period that Covered Activities are occurring. The Designated Biologist will keep a hard copy or electronic version of the ITP conditions. Permittee shall ensure a copy of the construction-monitoring notebook is available for review at the Project Area upon request by CDFW.

6.6. Trash Abatement. Permittee shall initiate a trash abatement program before starting Covered Activities and shall continue the program for the duration of the Project. Permittee shall ensure that trash and food items are contained in animal-proof containers and removed at least once a week to avoid attracting opportunistic predators such as ravens, coyotes, and ferai dogs.

6.7. Prohibition of Dogs and Firearms. Firearms and domestic dogs shall be prohibited in each Work Area as well as from site access routes during construction and development of the Project, except those firearms and domestic dogs that are in the possession of authorized security personnel or local, state, or federal law enforcement officials.

6.8. Dust Control. Permittee shall implement dust control measures during Covered Activities to facilitate visibility for monitoring of the Covered Species by the

Biological Monitor(s). Permittee shall keep the amount of water used to the minimum amount needed, and shall not allow water to form puddles.

6.9. Erosion Control Materials. Permittee shall prohibit use of erosion control materials potentially harmful to Covered Species and other species, such as monofilament netting (erosion control matting) or similar material, in potential Covered Species' habitat.

6.10. Delineation of Property Boundaries. Before starting Covered Activities within each Work Area within the Project Area, Permittee shall clearly delineate the boundaries of the applicable Work Area with fencing, stakes, or flags. Permittee shall restrict all Covered Activities to within the fenced, staked, or flagged areas. Permittee shall maintain all fencing, stakes, and flags until the completion of Covered Activities in that Work Area. The Work Area is defined as the discrete zone(s) within the Project Area where Covered Activities will actively occur.

6.11. Delineation of Habitat. Permittee shall clearly delineate habitat of the Covered Species to be avoided within each Work Area with posted signs, posting stakes, flags, and/or rope or cord, and place fencing as necessary to minimize the disturbance of Covered Species' habitat.

6.12. Project Access. Project-related personnel shall access the Project Area using existing routes, or routes identified in the Project Description and shall not cross Covered Species' habitat outside of or en-route to the Project Area. Permittee shall restrict Project-related vehicle traffic to established roads, staging, and parking areas. Permittee shall ensure that vehicle speeds do not exceed 15 miles per hour (mph) to avoid Covered Species on or traversing the roads. If Permittee determines construction of routes for travel are necessary outside of the Project Area, the Designated Representative shall contact CDFW for written approval before carrying out such an activity. CDFW may require an amendment to this ITP, among other reasons, if additional take of Covered Species will occur as a result of Project modification. Permittee may consider implementing additional avoidance measures, such as posting signs and installing physical barriers as necessary to prevent unauthorized off-road vehicle/equipment use. Permittee shall ensure that new and existing roads that are planned for either construction or widening do not extend beyond the boundary of the Construction Footprint. Permittee shall ensure that all vehicles passing or turning around shall do so within the Construction Footprint or in previously disturbed areas. Where new access is required and authorized by CDFW outside of existing roads or the Project Area, the route shall be clearly marked by the Designated Biologist(s) (i.e., flagged and/or staked) prior to the

onset of construction. If unauthorized off-road vehicle/equipment use occurs, CDFW may halt continued Covered Activities until the violation is remedied.

6.13. Staging Areas. Permittee shall confine all Project-related parking, storage areas, laydown sites, equipment storage, and any other surface-disturbing activities to the Project Area using, to the extent possible, previously disturbed areas. Additionally, Permittee shall not use or cross Covered Species' habitat outside of the marked Project Area unless provided for as described in Condition of Approval 6.12 of this ITP.

6.14. Hazardous Waste. Permittee shall immediately stop and, pursuant to pertinent state and federal statutes and regulations, arrange for repair and clean up by qualified individuals of any fuel or hazardous waste leaks or spills at the time of occurrence, or as soon as it is safe to do so. Permittee shall exclude the storage and handling of hazardous materials from the Project Area and shall properly contain and dispose of any unused or leftover hazardous products off-site.

6.15. CDFW Access. Permittee shall provide CDFW staff with reasonable access to the Project Area under Permittee control, and shall otherwise fully cooperate with CDFW efforts to verify compliance with or effectiveness of mitigation measures set forth in this ITP.

6.16. Refuse Removal. Upon completion of Covered Activities in each Work Area, Permittee shall remove from that Work Area and properly dispose of all temporary fill and construction refuse, including, but not limited to, broken equipment parts, wrapping material, cords, cables, wire, rope, strapping, twine, buckets, metal or plastic containers, and boxes.

7. Monitoring, Notification and Reporting Provisions:

7.1. Notification Before Commencement. The Designated Representative shall notify CDFW at least 14 calendar days before starting Covered Activities in each Work Area and shall document compliance with all pre-Project Conditions of Approval before starting such Covered Activities.

7.2. Notification of Non-compliance. The Designated Representative shall immediately notify CDFW in writing if he or she determines that the Permittee is not in compliance with any Condition of Approval of this ITP, including but not limited to any actual or anticipated failure to implement measures within the time periods indicated in this ITP and/or the MMRP. The Designated

Representative shall report any non-compliance with this ITP to CDFW in writing (email shall suffice) within 24 hours.

7.3. Compliance Monitoring. The Designated Biologist(s) shall be on-site daily at each Work Area within the Project Area when initial vegetation and soil disturbance Covered Activities occur. The Biological Monitor(s) shall conduct compliance inspections to: (1) minimize incidental take of the Covered Species; (2) prevent unlawful take of species; (3) check for compliance with all measures of this ITP; (4) check all exclusion zones; and (5) ensure that signs, stakes, and fencing are intact, and that Covered Activities are only occurring in the Project Area. During initial vegetation and soil disturbance, the Designated Biologist(s) shall conduct compliance inspections continuously within each of the Work Area(s) where Covered Activities are occurring. After initial vegetation and soil disturbance, the Biological Monitor(s) shall conduct compliance inspections a minimum of once per day within each of the Work Area(s) where Covered Activities are occurring. Biological Monitor(s) shall prepare daily written observation and inspection records for each active Work Area, summarizing: oversight activities and compliance inspections, observations of Covered Species and their sign, survey results, and monitoring activities required by this ITP. Biological Monitor(s) shall conduct compliance inspections a minimum of monthly during periods of inactivity and after clearing, grubbing, and grading are completed.

7.4. Tracking Suitable Habitat Feature Disturbances, Map Updating, and Reporting. Permittee shall maintain Geographic Information System (GIS) shapefile layers and associated maps depicting: 1) mapped areas of all land disturbances within the Construction Footprint; and 2) mapped areas of disturbed identified habitat features suitable for Covered Species (see Condition of Approval 7.4.1 for habitat features) within the Construction Footprint. Permittee shall maintain the GIS layers and metadata for those maps and shall update the GIS layers and maps if there are any new detections of Covered Species or their habitat feature. Within each Work Area of the Construction Footprint, Permittee shall track, in real time, acreages of identified habitat features suitable for Covered Species disturbed by Covered Activities. This tracking shall be maintained using a GIS format and include photo documentation of the habitat feature within a Work Area conducted no more than 14 days prior to initiation of Covered Activities. The photo documentation of each habitat feature shall include a minimum of four photos: one taken each from the North, South, East, and West and facing the habitat feature. There shall be separate photo documentation of each habitat feature suitable for Covered Species within a Work Area. Accordingly, if there are multiple habitat features in a Work Area, there will be multiple sets of photo documentation for that Work Area. The Permittee shall

document the total disturbed acreage of habitat features for each Covered Species compiled from the real time tracking, and compare the documented disturbance in each Work Area to the Baseline Maps provided in the Project ITP application. Permittee shall provide GIS layers and the associated metadata to CDFW with the Monthly Compliance Report (see Condition of Approval 7.7). Permittee shall also maintain maps for each Covered Species separately, and shall include updates to any of the maps in the next successive Annual Status Report (see Condition of Approval 7.8). Permittee shall also provide up-to-date GIS layers of the identified habitat features suitable for Covered Species with the Monthly Compliance Report and a summation of disturbance of identified habitat features annually at the time of Annual Status Report submission.

7.4.1. Permittee shall track the following suitable habitat features for the Covered Species:

7.4.1.1. CTS Upland refugia (Cross Creek Area (Tulare County))
- California annual grassland
- Pasture
- Barren
- Fallow field
- Inactive agriculture
- Ruderal

7.4.1.2 CTS Aquatic breeding (Cross Creek Area (Tulare County))
- Vernal pool
- Open water
- Seasonal wetland

7.4.1.3 SJAS (Kings, Tulare, and Kern counties)
- California annual grassland
- Pasture
- Barren
- Fallow field
- Inactive agriculture

7.4.1.4 TKR (Kings, Tulare, and Kern counties)
- Pasture
- Barren
- Fallow field
- Inactive agriculture

7.4.1.5 SWHA breeding (entire Construction Footprint)
- Riparian
- Eucalyptus woodland

7.4.1.6 SWHA foraging (entire Construction Footprint)
- California annual grassland
- Pasture
- Barren
- Fallow field
- Inactive agriculture
- Ruderal
- Field crops
- Row crops
- Irrigated hay crops

7.4.1.7 SJKF denning, foraging, and/or dispersal (entire Construction Footprint)
- California annual grassland
- Pasture
- Barren
- Fallow field
- Inactive agriculture
- Ruderal
- Field crops
- Row crops
- Irrigated hay crops

7.5. Reporting Approved Maps. Permittee shall document the cumulatively disturbed acreages of identified habitat features suitable for each Covered Species within the Construction Footprint, as well as acreages of identified habitat features anticipated to be disturbed over the succeeding 30 days, using the data maintained according to Condition of Approval 7.4. Permittee shall provide the above information to CDFW with the Monthly Compliance Report.

7.6. SJKF Corridor Monitoring. Permittee shall implement a SJKF Corridor Monitoring Program to assess the use of dedicated wildlife crossings by SJKF. The Permittee shall submit to CDFW for approval a SJKF Corridor Monitoring Program Plan prior to initiating construction of the dedicated wildlife crossings. The SJKF Corridor Monitoring Program Plan shall include no less than five years of monitoring efforts to assist in assessing the use of dedicated wildlife

crossings and other potential crossing structures by SJKF. Implementation of the SJKF Corridor Monitoring Program Plan shall commence as soon as the construction of the wildlife crossings is complete. The monitoring methodology may include use of trail cameras, track plates, or other methods to determine SJKF movement. Wildlife crossing construction activities shall not proceed until the SJKF Corridor Monitoring Program Plan has been approved in writing by CDFW's Regional Representative.

7.7. Monthly Compliance Report. For the duration of the construction-related Covered Activities within the Construction Footprint Activities and Fagundes Compensatory Mitigation Site Activities, the Designated Representative or Designated Biologist(s) shall compile the observation and inspection records identified in Condition of Approval 7.3 into a Monthly Compliance Report and submit it to CDFW along with a copy of the MMRP table with notes showing the current implementation status of each mitigation measure. Monthly Compliance Reports shall also include: 1) an accounting of the number of acres that have been disturbed within the Project Area, both for the prior month and a total since ITP issuance; 2) the cumulatively disturbed acreages of identified habitat features for each of the Covered Species within the Project Area, both for preceding 30 days and a total since ITP issuance; 3) the acreages of identified habitat features anticipated to be disturbed over the succeeding 30 days; and 4) the up-to-date GIS layers, associated metadata, and photo documentation used to track acreages disturbed during Covered Activities and as identified in Conditions of Approval 7.4 and 7.5. Monthly Compliance Reports shall be submitted to CDFW's Regional Office no later than the 15th day of the month. The Monthly Compliance Report is due at the office listed in the Notices section of this ITP and via e-mail to CDFW's Regional Representative. At the time of this ITP's approval, the CDFW Regional Representative is Dyana Valencourt (Dyana.Valencourt@wildlife.ca.gov). CDFW may at any time increase or decrease the timing and number of compliance inspections and reports required under this provision depending upon the results of previous compliance inspections. If CDFW determines the reporting schedule must be changed, CDFW will notify Permittee in writing of the new reporting schedule.

7.8. Annual Status Report. Permittee shall provide CDFW with an Annual Status Report (ASR) no later than January 31st of every year beginning with issuance of this ITP and continuing until CDFW accepts the Final Mitigation Report identified below. Each ASR shall include, at a minimum: 1) a summary of all Monthly Compliance Reports for that year identified in Condition of Approval 7.7; 2) a general description of the status of the Project Area and Covered Activities, including actual or projected completion dates, if known; 3) a copy of the table in the MMRP with notes showing the current implementation

status of each mitigation measure; 4) an assessment of the effectiveness of each completed or partially completed mitigation measure in avoiding, minimizing and mitigating Project impacts; 5) all available information about Project-related incidental take of the Covered Species; 6) information about other Project impacts on the Covered Species; 7) updates to the mapped areas of all land disturbances and mapped areas of identified habitat features suitable for Covered Species within the Project Area in accordance with Condition of Approval 7.4 above; 8) a summary of findings from pre-construction surveys (e.g., number of times a Covered Species or a den, burrow, or nest was encountered, location, if avoidance was achieved, if not, what other measures were implemented); 9) beginning and ending dates of O&M and emergency related and other Covered Activities undertaken during the reporting year; and 10) a summary of the cumulative status of the disturbed acreages of all land disturbances and identified habitat features for each of the Covered Species within the Project Area, both for the preceding twelve months and a total since ITP issuance, and the acreages of all land and identified habitat features anticipated to be disturbed over the succeeding twelve months in accordance with Conditions of Approval 7.4 and 7.5 above.

7.9. CNDDB Observations. The Designated Biologist(s) shall submit all observations of Covered Species to CDFW's California Natural Diversity Database (CNDDB) within 60 calendar days of the observation and the Designated Biologist(s) shall include copies of the submitted forms with the next Monthly Compliance Report or ASR, whichever is submitted first relative to the observation.

7.10. Final Mitigation Report. Within 30 days of ITP expiration, Permittee shall provide CDFW with a Final Mitigation Report. The Designated Biologist(s) shall prepare the Final Mitigation Report which shall include, at a minimum: 1) a summary of all Monthly Compliance Reports and all ASRs; 2) a copy of the table in the MMRP with notes showing when each of the mitigation measures was implemented; 3) all available information about Project-related incidental take of the Covered Species; 4) information about other Project impacts on the Covered Species; 5) beginning and ending dates of Covered Activities; 6) an assessment of the effectiveness of this ITP's Conditions of Approval in minimizing and fully mitigating Project impacts of the taking on Covered Species; 7) recommendations on how mitigation measures might be changed to more effectively minimize take and mitigate the impacts of future projects on the Covered Species; and 8) any other pertinent information.

7.11. Notification of Take or Injury. Permittee shall immediately notify the Designated Biologist(s) if a Covered Species is taken or injured by a Covered Activity, or if a Covered Species is otherwise found dead or injured within the Project Area or

its vicinity. The Designated Biologist(s) or Designated Representative shall provide initial notification to CDFW by calling the Regional Office at (559) 243-4005. The initial notification to CDFW shall include information regarding the location, species, and number of animals taken or injured and the ITP Number. Following initial notification, Permittee shall send the CDFW Regional Representative a written report within **two** calendar days. The report shall include the date and time of the finding or incident, location of the animal or carcass, and if possible provide a photograph, explanation as to cause of take or injury, and any other pertinent information.

8. Take Minimization Measures:

The following requirements are intended to ensure the minimization of incidental take of Covered Species in the Project Area during Covered Activities. Permittee shall implement and adhere to the following conditions to minimize take of Covered Species:

Construction Activities

8.1. Conditions of Approval in the Construction Footprint. Construction Activities shall implement all General Provisions set forth in Condition of Approval 6 and all Monitoring, Notification, and Reporting Provisions set forth in Condition of Approval 7 of this ITP. Conditions of Approval 8.1 through 8.17.4 shall apply to construction-related Covered Activities in the Construction Footprint.

8.2. Equipment Fueling. Mobile equipment fueling and maintenance shall occur at least 100 feet from identified aquatic habitat features suitable for CTS, as defined by Condition of Approval 7.4.1.2; the habitat features are subject to update. Fixed equipment fueling and maintenance areas, either permanently or temporarily fixed, shall be located at a distance of at least 100 feet from aquatic habitat features, and shall include fixed containment devices that will preclude fuel or other liquids from exiting the equipment fueling maintenance area in the event of a spill or leak. Sufficient spill containment and cleanup equipment shall be present at all mobile, temporary, and permanent equipment fueling locations.

8.3. Lighting. Permittee shall not use permanent or temporary, fixed, exterior lighting, including motion-triggered security lighting that casts light on Covered Species habitat beyond the Construction Footprint of Covered Activities between sunset and sunrise.

8.4. Herbicide Use. Permittee shall ensure that all herbicide use (mixing, application, and clean-up) is done by a licensed applicator in accordance with all applicable state, federal, and local regulations. Permittee shall only apply herbicide sprays via ground application when wind speed measures less than three mph.

Permittee shall ensure all herbicide sprays utilized within and adjacent to identified habitat features suitable for Covered Species contain a dye (registered for aquatic use by the California Department of Pesticide Regulation, if warranted) to prevent overspray.

8.5. Rodenticide Use. Permittee shall prohibit the use of rodenticides in the Construction Footprint.

8.6. Covered Species Observations. At any time while engaged in Covered Activities, all workers shall inform the Biological Monitor(s) if a Covered Species is seen within or near the Work Area. All Covered Activities in the vicinity of the Covered Species, which could injure or kill the animal, shall cease until the Covered Species is moved by the Biological Monitor(s) or it moves from the Work Area of its own accord.

8.7. Daily Entrapment Inspections. The Biological Monitor(s) shall inspect all open holes, sumps, and trenches within each Work Area at the beginning, middle, and end of each day for trapped Covered Species. All trenches, holes, sumps, and other excavations with sidewalls steeper than a 1:1 (45 degree) slope and that are between two and eight feet deep shall be covered when workers or equipment are not actively working in the excavation, which includes cessation of work overnight, or shall have an escape ramp of earth or a non-slip material with a less than 1:1 (45 degree) slope. All trenches, holes, and other excavations with sidewalls steeper than a 1:1 (45 degree) slope and greater than eight feet deep shall be covered when workers or equipment are not actively working in the excavation and at the end of each work day. To prevent inadvertent entrapment of Covered Species or any other animals, the Biological Monitor (s) shall oversee the covering of all excavated, trenches, holes, sumps, or other excavations with a greater than 1:1 (45 degree) slope of any depth with barrier material (such as hardware cloth) at the close of each working day such that Covered Species are unable to dig or squeeze under the barrier and become entrapped. The outer two feet of excavation cover shall conform to solid ground so that gaps do not occur between the cover and the ground and secured with soil staples or similar means to prevent gaps. Each morning, mid-day, the end of each day (including weekends and any other non-work days), and immediately before trenches, holes, sumps, or other excavations are back-filled, the Biological Monitor(s) shall thoroughly inspect them for trapped Covered Species. Trenches, holes, sumps, or other excavations that are covered long-term shall be inspected at the beginning of each working day to ensure inadvertent entrapment has not occurred. If any worker discovers that Covered Species have become trapped, Permittee shall cease all Covered Activities in the vicinity and notify the Biological Monitor(s) immediately. Project

workers and the Biological Monitor(s) shall allow the Covered Species to escape unimpeded if possible before Covered Activities are allowed to continue, or, if the Covered Species is CTS, the Designated Biologist(s) shall capture and relocate the animal as per the CTS Salvage and Relocation Plan described in Condition of Approval 8.13.1. If the Covered Species is SJAS or TKR, the Designated Biologist(s) shall capture and relocated the animal as per the SJAS or TKR Salvage and Relocation Plan described in Condition of Approval 8.16.1, and Approval 8.17.1, respectively.

8.8. Materials Inspection. Workers shall thoroughly inspect for Covered Species in all construction pipe, culverts, or similar structures with a diameter of 7.6 centimeters (three inches) or greater that are stored for one or more overnight periods before the structure is subsequently moved, buried, or capped. If during inspection one of these animals is discovered inside the structure, workers shall notify the Biological Monitor(s) and allow the Covered Species to safely escape that section of the structure before moving and utilizing the structure.

8.9. Equipment Inspection. Workers shall inspect for Covered Species under vehicles and equipment before the vehicles and equipment are moved. If a Covered Species is present, the worker shall notify the Biological Monitor(s) and wait for the Covered Species to move unimpeded to a safe location. Alternatively, the Permittee shall contact the Biological Monitor(s) to determine if the Biological Monitor(s) can safely move the Covered Species out of harm's way in compliance with this ITP.

8.10. Covered Species Injury. If a Covered Species is injured as a result of Project-related activities, the Designated Biologist(s) shall immediately take it to a CDFW-approved wildlife rehabilitation or veterinary facility that routinely evaluates and treats the injured Covered Species. Permittee shall identify the facility before starting Covered Activities. Permittee shall bear any costs associated with the care or treatment of such injured Covered Species. Permittee shall notify CDFW of the injury to the Covered Species immediately by telephone and e-mail followed by a written incident report as described in Condition of Approval 7.11. Notification shall include the date, time, location, and circumstances of the incident and the name of the facility where the animal was taken.

8.11. Vegetation Removal Methods. Vegetative cover shall be removed prior to grading in Work Areas with identified habitat features suitable for Covered Species. Where possible, hand tools (e.g., trimmer, chain saw, etc.) shall be used to trim or remove shrub vegetation. All vegetation removal in areas with

identified habitat features suitable for Covered Species shall be monitored directly (e.g., directly observed) by the Designated Biologist(s) to minimize impacts to Covered Species.

8.12. Geotechnical Investigations. Permittee shall reuse, disperse on site, or remove from the Construction Footprint the soil cuttings from geotechnical investigations. Permittee shall discharge drilling fluids in accordance with the Construction General Permit (Order No. 2009-0009-DWQ as modified by Order No. 2010-0014-DWQ, NPDES No. CAS000002, adopted September 2, 2009, effective July 1, 2010) and the Section 401 Water Quality Certification.

8.13. Specific Measures for CTS.

8.13.1. CTS Salvage and Relocation Plan. Permittee shall prepare a CTS Salvage and Relocation Plan. The CTS Salvage and Relocation Plan shall include, but not be limited to, a discussion (and map) of the portion of the Project Area which represents potential breeding and upland habitat; those areas within 1.3 miles of known breeding habitat for the Covered Species; an identification of the survey, hand excavation, capture handling, and relocation methods; identification of relocation area(s); and identification of a wildlife rehabilitation center or veterinary facility that routinely evaluates or treats amphibians. The CTS Salvage and Relocation Plan shall be submitted to CDFW for approval prior to the beginning of Covered Activities. Covered Activities within the Project Area may not proceed until the CTS Relocation Plan is approved in writing by CDFW. Only approved Designated Biologist(s) are authorized to capture and handle CTS.

8.13.2. CTS Pre-construction Surveys. No more than 14 days prior to starting Covered Activities, the Designated Biologist(s) with assistance (if needed) from the General Biological Monitor(s) shall survey the Work Area(s) located within that portion of the Construction Footprint that has identified habitat features suitable for CTS. These surveys shall provide 100 percent visual coverage of the Work Area(s) and a 50-foot buffer zone. If any CTS are found within the Work Area or 50-foot buffer zone(s), the Designated Biologist(s) shall relocate them from the Work Area or buffer zone(s) in accordance with the CDFW-approved CTS Salvage and Relocation Plan prepared in accordance with Condition of Approval 8.13.1 above. The Designated Biologist(s) shall submit a report documenting the results of the

pre-construction surveys to CDFW within five days after performing the surveys.

8.13.3. Flag Burrows. The Designated Biologist(s) with assistance from the General Biological Monitor(s) shall flag all potential small mammal burrows within the Work Area(s) and a 50-foot buffer zone(s) (see Condition of Approval 8.13.2) to alert biological and work crews to their presence. Where feasible, an avoidance buffer of 50 feet or greater around active small mammal burrows shall be maintained regardless if the burrow is in the Work Area or solely within the Work Area's 50-foot buffer zone.

8.13.4. Small Mammal Burrow Excavation. In each Work Area to be disturbed that is within 0.7 mile of known or potential breeding habitat for CTS, all small mammal burrows flagged per Condition of Approval 8.13.3 that cannot be fully avoided by at least 50 feet shall be fully excavated by hand under the direct supervision of the Designated Biologist(s). This excavation requirement applies regardless if the burrow is located within the Work Area or the Work Area's 50-foot buffer zone. The Designated Biologist(s) shall relocate any live CTS discovered during burrow excavation in accordance with the salvage and relocation plan required in Condition of Approval 8.13.1 above. Excavation shall occur no more than 14 days after the completion of the CTS pre-construction surveys as described in Condition of Approval 8.13.2 above.

8.13.5. CTS Exclusion Fencing. Permittee shall install exclusion fencing around the perimeter of all Work Area(s) within 0.7 mile of known or potential CTS breeding habitat to prevent CTS migrating into the Work Area(s). Fencing material and design shall be reviewed and approved in writing by CDFW before exclusion fencing installation. The exclusion fence shall be installed **after** all small mammal burrows inside the planned fence zone needing to be excavated are hand excavated under the direct supervision of the Designated Biologist(s) in accordance with Condition of Approval 8.13.4 above to prevent entrapment of CTS within the Work Area(s). The exclusion fence shall be buried a minimum of four inches below ground surface and equipped with one-way exits to avoid entrapment of CTS and other amphibians or reptiles within the fenced area. The Permittee shall also avoid small mammal burrows to the maximum extent possible during the installation of the exclusion fencing. When small mammal burrows cannot be avoided by a 50-foot no disturbance buffer from

the fence line, they shall be hand excavated as described in Condition of Approval 8.13.4 above with direct supervision by the Designated Biologist(s) prior to commencing fence installation. Alternatively, Permittee can forego exclusion fence installation. If exclusion fence is not erected at Work Area(s) within 0.7 mile of known or potential breeding habitat, all Covered Activities shall cease when a 70 percent or greater chance of rainfall is predicted within 72 hours in accordance with Condition of Approval 8.13.10 below.

8.13.6. CTS Exclusion Fence Installation. The Designated Biologist(s) shall accompany the exclusion fence construction crew(s) to ensure that CTS are not killed or injured during fence installation. The exclusion fence shall be supported sufficiently to maintain its integrity under all conditions such as wind and heavy rain for the duration of the Covered Activities in the Work Area being fenced. The Designated Biologist(s) shall inspect the completed fencing prior to construction. Permittee shall check the exclusion fence at least once weekly and maintain/repair the fence when necessary. Permittee should install temporary exclusion fencing in a sequential manner that corresponds to the progression of Covered Activities within Work Areas. For example, temporary fencing is not required to be installed simultaneously at all Work Areas, and shall be removed immediately upon completion of Covered Activities in each fenced Work Area.

8.13.7. CTS in Construction Footprint. If CTS is found by any person in the Construction Footprint before or during Covered Activities, all work that could potentially harm the CTS shall stop immediately until the Designated Biologist(s) can relocate the CTS following the CTS Salvage and Relocation Plan specified in Condition of Approval 8.13.1 above. The relocation area(s) shall be identified in the CTS Salvage and Relocation Plan by the Designated Biologist(s) prior to the start of Covered Activities and are subject to CDFW approval.

8.13.8. CTS Record of Handling. All CTS captures, relocations, and observations by the Designated Biologist(s) shall include the following documented information: the date, time, and location of each occurrence using Global Positioning System (GPS) technology; the name of the party that actually identified the CTS; circumstances of the incident; the general condition and health of each individual; any diagnostic markings, sex, age (juvenile or adult); actions undertaken; and habitat description. Permittee shall also submit this information to

the CNDDB as per Condition of Approval 7.9. This information shall also be included in the Monthly Compliance Reports and Final Mitigation Report.

8.13.9. Dry Season Work. Fill, vegetation removal, or other ground-disturbing activities within or immediately adjacent to CTS potential breeding habitat shall be confined to the dry season from June 15th to October 31st.

8.13.10. Rain Forecast. The Designated Biologist(s) and Permittee shall monitor the National Weather Service 72-hour forecast for the Project Area. If a 70 percent or greater chance of rainfall is predicted within 72 hours, Permittee shall cease all Covered Activities in all Work Areas where initial ground disturbance (vegetation removal, grading, excavation, etc.) has yet to finish until a zero percent chance of rain is forecast. Work may continue 24 hours after the rain ceases and there is zero percent chance of precipitation in the 72-hour forecast. The Designated Biologist(s) shall re-survey each Work Area before Covered Activities resume to capture and relocate any CTS that are discovered during the surveys. Work Areas where exclusion fencing has been installed in accordance with Conditions of Approval 8.13.5 and 8.13.6 above, may continue Covered Activities during rainfall events.

8.13.11. Night Work. Permittee shall strictly prohibit all Covered Activities at night (the period between sunset and sunrise) in Work Areas within 1.3 miles of potential or known CTS breeding sites when a 70 percent or greater chance of rainfall is predicted within 72 hours of Covered Activities until zero percent chance of rain is forecast. This restriction is not applicable to Covered Activities at night in Work Areas within 0.7 miles of potential or known CTS breeding sites once they have been encircled with CTS exclusion fencing pursuant to Conditions of Approval 8.13.5 and 8.13.6. However, even after salamander exclusion fencing is installed, this condition still applies to construction-related traffic moving though areas within 1.3 miles of potential or known CTS breeding sites that are outside of the CTS exclusion fencing (e.g., on roads outside a fenced Work Area).

8.13.12. Soil Stockpiles. Permittee shall ensure that soil stockpiles are placed where soil will not pass into potential CTS breeding pools or into any other "Waters of the State," in accordance with Fish and Game Code

section 5650. Permittee shall appropriately protect stockpiles to prevent soil erosion.

8.13.13. Fieldwork Code of Practice. To ensure that disease is not conveyed between Work Areas the Biological Monitor(s) shall follow the Fieldwork Code of Practice developed by the Declining Amphibian Populations Task Force (Attachment 2). The Biological Monitor(s) may substitute a bleach solution (0.5 to one cup of bleach to one gallon of water) for the ethanol solution. Care shall be taken so that all traces of the disinfectant are removed before entering the next aquatic habitat.

8.14. Specific Measures for SWHA.

8.14.1. Pre-construction SWHA Surveys. The Designated Biologist(s) shall conduct pre-construction surveys during the SWHA nesting season (February 15th through September 15th), prior to conducting Covered Activities in each Work Area. Pre-construction surveys shall occur no more than 30 days prior to beginning Covered Activities, and shall include a 0.5-mile buffer around each Work Area. The Designated Biologist(s) shall survey all suitable habitat/nest trees for nesting SWHA. The Designated Biologist(s) or Designated Representative shall provide the nesting season survey results to CDFW in a written report no more than five days prior to beginning Covered Activities.

8.14.2. SWHA Nest Buffer. The Permittee and Designated Biologist(s) shall ensure that no Covered Activities occur within 100 feet of a SWHA nest during the nesting season (February 15th through September 15th).

8.14.3. SWHA Nest Buffer and Monitoring. If a nesting SWHA is found in a Work Area or the 0.5-mile Work Area buffer (see Condition of Approval 8.14.1), the Designated Biologist(s) shall be present daily for the entire duration of any Covered Activities within the Work Area to monitor the behavior of the potentially affected SWHA. The Designated Biologist(s) shall have the authority to order the cessation of all Covered Activities if the bird(s) exhibits distress and/or abnormal nesting behavior (swooping/stooping, excessive vocalization [distress calls], agitation, failure to remain on nest, failure to deliver prey items for an extended time period, failure to maintain nest, etc.) which may cause reproductive failure (nest abandonment and loss of eggs and/or young). Permittee shall not resume Covered

Activities until CDFW has been consulted by the Designated Biologist(s), and both the Designated Biologist(s) and CDFW confirm that the bird's behavior has normalized.

8.15. Specific Measures for SJKF.

8.15.1. SJKF Survey. No more than 30 days prior to Permittee beginning Covered Activities in each Work Area, the Designated Biologist(s) with assistance (if needed) from the General Biological Monitor(s) shall perform a pre-construction survey for SJKF dens (potential, known, active, atypical, and natal) in the particular Work Area. The pre-construction survey shall cover the Work Area and a buffer zone of 500 feet in size beyond the Work Area's boundaries.

8.15.2. SJKF Den Avoidance. If a potential SJKF den (any subterranean hole, three inches or larger, for which available evidence is insufficient to conclude that it is being used or has been used by a SJKF) is discovered or a SJKF is found in an "atypical" den such as a pipe or culvert, a minimum 50-foot buffer around the potential or "atypical" den shall be established using flagging. If a known SJKF den is discovered, Permittee shall establish a minimum buffer of at least 100 feet around the den using fencing or flagging. If a natal den (den in which SJKF young are reared) is discovered, a buffer of at least 200 feet around the den using fencing or flagging shall be established. For any natal dens with pups, the den shall have a buffer of at least 500 feet around it using fencing or flagging. Buffer zones shall be considered Environmentally Sensitive Areas, and no Covered Activities are allowed within a buffer except per Condition of Approval 8.15.3. The Permittee shall notify the United States Fish and Wildlife Service (USFWS) and CDFW's Regional Representative immediately via telephone or e-mail if any SJKF active dens, natal dens, or occupied atypical dens are discovered within or immediately adjacent to any Work Area.

8.15.3. SJKF Den Excavation and Blocking. For active dens and potential dens that exhibit signs of SJKF use or characteristics suggestive of SJKF dens (including dens in natural substrate and in/under man-made structures) that cannot be avoided as per Condition of Approval 8.15.2, and if, after four consecutive days of monitoring with tracking medium or infrared camera, the Designated Biologist(s) has determined that SJKF is not currently present, the den may be excavated or blocked temporarily, the latter situation (blocking, as

opposed to destruction) being required when the den will not be directly impacted by construction. Potential SJKF dens without any signs of SJKF use may be excavated (destroyed) under the supervision of the Designated Biologist(s) without advance tracking or camera monitoring. Natal dens shall not be excavated until the pups and adults have vacated and then only after consultation with the USFWS and CDFW. If the excavation process reveals evidence of current use by SJKF then den excavation shall cease immediately and tracking or camera monitoring as described above shall be conducted/resumed. Excavation of the den may be completed when, in the judgment of the Designated Biologist(s), the SJKF has escaped from the partially excavated den. SJKF dens shall be carefully excavated until it is certain no individuals of SJKF are inside. Dens to be destroyed shall be fully excavated, filled with dirt and compacted to ensure that SJKF cannot reenter or use the den during Covered Activities. Dens to be blocked (e.g., not within the construction footprint but within the no disturbance buffer) shall be blocked with sandbags or other CDFW-approved material that ensures that SJKF cannot reenter or use the den during Covered Activities, but that can be easily removed at the cessation of construction activities in a given Work Area. If an individual SJKF does not vacate a den within the Work Area within a reasonable timeframe, Permittee shall contact USFWS and CDFW and get written guidance (e-mail will suffice) from both agencies prior to proceeding with den excavation.

8.15.4. SJKF Den Replacement Plan. Within ten days of fully excavating a den, filling it with dirt, and compacting it (see Condition of Approval 8.15.3), Permittee shall replace each destroyed (excavated) known, active, and natal den with an artificial den to compensate for the loss of important shelter used by SJKF for protection, reproduction, and escape from predators. A minimum of 30 days prior to commencing Covered Activities, the Designated Biologist(s) shall prepare a SJKF Den Replacement Plan. The SJKF Den Replacement Plan shall include, but not be limited to, a discussion and map of the locations of each known, active, and natal den; a discussion and map of potential locations for artificial den replacements; an identification of the hand excavation methods; and identification of the replacement den dimensions (e.g., depth and width of den, width of den entrance, number of and placement of entrances to natal dens). The SJKF Den Replacement Plan shall be submitted to CDFW for approval prior to the beginning of Covered Activities. Covered Activities within the

Project Area may not proceed until the SJKF Den Replacement Plan is approved in writing by CDFW.

8.15.5. Unblocking Temporarily Blocked SJKF Dens. SJKF dens blocked as per Condition of Approval 8.15.3 shall be unblocked (material at entrance removed) within 48 hours of the cessation of active construction activities in a given Work Area.

8.16. Specific Measures for SJAS.

8.16.1. SJAS Relocation Plan. The Permittee shall submit a SJAS relocation plan to CDFW prior to initiating ground-disturbing activities in any areas occupied by SJAS. Relocation activities shall not proceed until the relocation plan has been approved in writing by CDFW's Regional Representative. Once the relocation plan is approved by CDFW, it may be used for all SJAS relocation activities for the duration of the ITP. Any proposed changes to the relocation plan shall be submitted in writing to CDFW and approved by CDFW in writing prior to implementation of any proposed relocation plan modifications.

8.16.2. SJAS Burrow Avoidance. Prior to the commencement of any ground-disturbing activities in any areas occupied by SJAS, the Designated Biologist, assisted (if needed) by the General Biological Monitor, shall conduct a survey for burrows occupied or potentially occupied by SJAS. Any burrows present within the portion of the Project Area to be disturbed by earthwork, that are suspected or known to be occupied by SJAS, and that cannot be avoided by the 50-foot avoidance buffer shall be live trapped by the Designated Biologist(s) prior to the initiation of ground-disturbing activities in the occupied location. SJAS shall be trapped and relocated to the CDFW-approved release site identified in the SJAS relocation plan (described in Condition of Approval 8.16.1). SJAS shall be relocated only after young of the year SJAS are observed above ground and during the main activity period for the species (April 1 to September 30).

8.16.3. SJAS Burrow Excavation. Following live trapping activities and before ground-disturbing activities commence, any occupied or potentially occupied SJAS burrows present within the portion of the Work Area to be disturbed shall be fully excavated by hand by the Designated Biologist(s) to allow any remaining SJAS an opportunity to escape or be captured by hand as necessary. Any SJAS encountered in the

excavated burrows shall be relocated to a CDFW-approved release site identified in the SJAS relocation plan (described in Condition of Approval 8.16.1). Dormant or torpid SJAS encountered shall also be collected and moved to an artificial burrow installed at a CDFW-approved release site identified in the SJAS relocation plan (described in Condition of Approval 8.16.1). "Soft-release" methods in cages with artificially constructed burrows shall be used at the release (receiver) sites.

8.17. Specific Measures for TKR.

8.17.1. TKR Relocation Plan. The Permittee shall submit a TKR relocation plan to CDFW at least 14 days prior to initiating ground-disturbing activities or trapping attempts in any areas occupied by TKR burrows. The Relocation Plan shall include a specific plan for trapping, relocation, and burrow excavation. Relocation activities shall not proceed until the relocation plan has been approved in writing by CDFW's Regional representative. Once the relocation plan is approved by CDFW, it may be used for all TKR relocation activities for the duration of the ITP. Any proposed changes to the relocation plan shall be submitted in writing to CDFW and approved by CDFW in writing prior to implementation of any proposed relocation plan modifications.

8.17.2. TKR Burrow Avoidance. Prior to the commencement of any ground-disturbing activities in any areas occupied by TKR, the Designated Biologist, assisted (if needed) by the General Biological Monitor, shall conduct a survey for burrows occupied or potentially occupied by TKR. Active TKR burrows shall be avoided to the maximum extent practicable. If earthwork (clearing and grubbing, grading, blading, filling) must occur within active TKR burrows, these areas shall be live trapped by the Designated Biologist(s) prior to the initiation of ground-disturbing activities in these areas to minimize direct mortality. Any captured TKR shall be relocated to a CDFW-approved release site identified in the TKR relocation plan (described in Condition of Approval 8.17.1).

8.17.3. TKR Burrow Excavation. Following live trapping activities, any occupied or potentially occupied TKR burrows present within the portion of the Project site to be disturbed shall be fully excavated by hand by the Designated Biologist(s) to allow any remaining TKR an opportunity to escape or be captured by hand as necessary. Any TKR

encountered in the excavated burrows shall be relocated to a CDFW-approved release site identified in the TKR relocation plan (described in Condition of Approval 8.17.1). Dormant or torpid TKR encountered shall also be collected and moved to an artificial burrow installed at a CDFW-approved release site identified in the TKR relocation plan (described in Condition of Approval 8.17.1). "Soft-release" methods in cages with artificially constructed burrows shall be used at the release (receiver) sites.

8.17.4. Record of Covered Species Handled. The Designated Biologist(s) shall maintain a record of all SJAS and TKR handled, and all documented observations of SJKF. This information shall include for each animal: a) the locations (Global Positioning System [GPS] coordinates and maps) and time of capture and/or observation as well as release; b) sex; c) approximate age (adult/juvenile); d) weight; e) general condition and health, noting all visible conditions including gait and behavior, diarrhea, emaciation, salivation, hair loss, ectoparasites, and injuries; and f) ambient temperature when handled and released.

Fagundes Compensatory Mitigation Site Activities

8.18 Timeframe for Mitigation Site Activities. Permittee shall complete all construction activities at the Mitigation Site within 18 months of the start of construction at the Mitigation Site, as documented in the Notification before Commencement submitted pursuant to Condition of Approval 8.20.

8.19 Conditions of Approval at the Mitigation Site. Restoration activities at the Mitigation Site shall implement all General Provisions set forth in Condition of Approval 6 of this ITP. Conditions of Approval 8.18 through 8.38.3 shall apply to Covered Activities in the Mitigation Site.

8.20 Notification Before Commencement at the Mitigation Site. The Designated Representative shall notify CDFW 14 calendar days before starting Covered Activities at the Mitigation Site and shall document compliance with all pre-Project Conditions of Approval before starting Covered Activities.

8.21 Notification of Non-compliance at the Mitigation Site. The Designated Representative shall immediately notify CDFW in writing if he or she determines that the Permittee is not in compliance with any Condition of Approval of this ITP at the Mitigation Site, including but not limited to any actual or anticipated failure to implement measures within the time periods indicated in this ITP

and/or the MMRP. The Designated Representative shall report any non-compliance with this ITP at the Mitigation Site to CDFW within 24 hours.

8.22 Compliance Monitoring at the Mitigation Site. The Designated Biologist(s) shall be on-site daily at each Work Area within the Mitigation Site when vegetation and soil disturbance Covered Activities occur. The Designated Biologist(s) shall conduct compliance inspections to: (1) minimize incidental take of the Covered Species; (2) prevent unlawful take of species; (3) check for compliance with all measures of this ITP, and that Covered Activities are only occurring in the Project Area. During initial vegetation and soil disturbance, the Designated Biologist(s) shall conduct compliance inspections continuously within each of the Work Area(s) where Covered Activities are occurring. After initial vegetation and soil disturbance, the Designated Biologist(s) shall conduct compliance inspections a minimum of once per day within each of the Work Area(s) where Covered Activities are occurring. The Designated Biologist(s) shall prepare daily written observation and inspection records summarizing: oversight activities and compliance inspections, observations of Covered Species and their sign, and monitoring activities required by this ITP. The Designated Biologist(s) shall conduct compliance inspections a minimum of monthly during periods of inactivity and after clearing, grubbing, and grading are completed.

8.23 Equipment Fueling and Maintenance at the Mitigation Site. Mobile equipment fueling and maintenance at the Mitigation Site shall occur at least 100 feet from aquatic habitat features suitable for CTS. Fixed equipment fueling and maintenance areas, either permanently or temporarily fixed, shall be located at a distance of at least 100 feet from aquatic habitat features, and shall include fixed containment devices that will preclude fuel or other liquids from exiting the equipment fueling maintenance area in the event of a spill or leak. Sufficient spill containment and cleanup equipment shall be present at all mobile, temporary, and permanent equipment fueling locations.

8.24 Staging Areas at the Mitigation Site. The 0.25-acre temporary staging area for the Riparian Restoration Area, and the 0.5-acre temporary staging area for the Wetland Restoration Area shall each be located at a distance of at least 100 feet from vernal pools and other aquatic habitat features, and shall include fixed containment devices that will preclude any fuel or other liquids from exiting the Staging Areas in the event of a spill or leak. Sufficient spill containment and cleanup equipment shall be present at the temporary Staging Areas. Permittee shall restore the temporary Staging Areas to pre-Project conditions upon the completion of vernal pool creation and riparian restoration.

8.25 Night Work at the Mitigation Site. Permittee shall strictly prohibit all Covered Activities at night (the period between sunset and sunrise) at the Mitigation Site.

8.26 Herbicide Use at the Mitigation Site. Permittee shall prohibit the use of herbicides at the Mitigation Site, except to spot-treat non-native invasive vegetation (as defined, described, and inventoried as invasive by the California Invasive Plant Council). Permittee shall ensure that all herbicide use (mixing, application, and clean-up) at the Mitigation Site is done by a licensed applicator in accordance with all applicable state, federal, and local regulations. Permittee shall only apply herbicide sprays via ground application when wind speed measures less than three mph at the Mitigation Site. Permittee shall ensure all herbicide sprays utilized within and adjacent to identified habitat features suitable for Covered Species contain a dye (registered for aquatic use by the California Department of Pesticide Regulation, if warranted) to prevent overspray at the Mitigation Site.

8.27 Rodenticide Use at the Mitigation Site. Permittee shall prohibit the use of rodenticides at the Mitigation Site.

8.28 Covered Species Observations at the Mitigation Site. At any time while engaged in Covered Activities, all workers shall inform the Designated Biologist(s) if a Covered Species is seen within or near the Work Area. All Covered Activities in the vicinity of the Covered Species, which could injure or kill the animal, shall cease until the Covered Species is moved by the Designated Biologist(s) or it moves from the Work Area of its own accord.

8.29 Daily Entrapment Inspections at the Mitigation Site. The Designated Biologist(s) shall inspect all open holes, sumps, and trenches within each Mitigation Site Work Area at the beginning, middle, and end of each day for trapped Covered Species. All trenches, holes, sumps, and other excavations with sidewalls steeper than a 1:1 (45 degree) slope and that are between two- and eight feet deep shall be covered when workers or equipment are not actively working in the excavation, which includes cessation of work overnight, or shall have an escape ramp of earth or a non-slip material with a less than 1:1 (45 degree) slope. All trenches, holes, and other excavations with sidewalls steeper than a 1:1 (45 degree) slope and greater than eight feet deep shall be covered when workers or equipment are not actively working in the excavation and at the end of each work day. To prevent inadvertent entrapment of Covered Species or any other animals, the Designated Biologist(s) shall oversee the covering of all excavated, trenches, holes, sumps, or other excavations with a greater than 1:1 (45 degree) slope of any depth with barrier material (such as hardware cloth) at the close of each working day such that Covered Species are unable to

dig or squeeze under the barrier and become entrapped. The outer two feet of excavation cover shall conform to solid ground so that gaps do not occur between the cover and the ground and secured with soil staples or similar means to prevent gaps. Each morning, mid-day, the end of each day (including weekends and any other non-work days), and immediately before trenches, holes, sumps, or other excavations are back-filled, the General Biological Monitor (s) shall thoroughly inspect them for trapped Covered Species. Trenches, holes, sumps, or other excavations that are covered long-term shall be inspected at the beginning of each working day to ensure inadvertent entrapment has not occurred. If any worker discovers that Covered Species have become trapped, Permittee shall cease all Covered Activities in the vicinity and notify the Designated Biologist(s) immediately. Project workers and the Designated Biologist(s) shall allow the Covered Species to escape unimpeded if possible before Covered Activities are allowed to continue, or, if the Covered Species is CTS, the Designated Biologist(s) shall capture and relocated the animal as per the CTS Salvage and Relocation Plan described in Condition of Approval 8.13.1.

8.30 Materials Inspection at the Mitigation Site. Workers shall thoroughly inspect for Covered Species at the Mitigation Site in all construction pipe, culverts, or similar structures with a diameter of 7.6 centimeters (three inches) or greater that are stored for one or more overnight periods before the structure is subsequently moved, buried, or capped. If during inspection one of these animals is discovered inside the structure, workers shall notify the Designated Biologist(s) and allow the Covered Species to safely escape that section of the structure before moving and utilizing the structure.

8.31 Equipment Inspection at the Mitigation Site. Workers shall inspect for Covered Species under vehicles and equipment at the Mitigation Site before the vehicles and equipment are moved. If a Covered Species is present, the worker shall notify the Designated Biologist(s) and wait for the Covered Species to move unimpeded to a safe location. Alternatively, the Permittee shall contact the Designated Biologist(s) to determine if the Designated Biologist(s) can safely move the Covered Species out of harm's way in compliance with this ITP.

8.32 Covered Species Injury at the Mitigation Site. If a Covered Species is injured at the Mitigation Site as a result of Mitigation Site Covered Activities, the Designated Biologist(s) shall immediately take it to a CDFW-approved wildlife rehabilitation or veterinary facility that routinely evaluates and treats the injured Covered Species. Permittee shall identify the facility before starting Covered Activities. Permittee shall bear any costs associated with the care or treatment of such injured Covered Species. Permittee shall notify CDFW of the injury to

the Covered Species immediately by telephone and e-mail followed by a written incident report as described in Condition of Approval 7.11. Notification shall include the date, time, location, and circumstances of the incident and the name of the facility where the animal was taken.

8.33 Vegetation Removal Methods at the Mitigation Site. Vegetative cover at the Mitigation Site shall be removed prior to grading in Work Areas with identified habitat features suitable for Covered Species. Where possible, hand tools (e.g., trimmer, chain saw, etc.) shall be used to trim or remove shrub vegetation. All vegetation removal in areas with identified habitat features suitable for Covered Species shall be monitored directly (e.g., directly observed) by the Designated Biologist(s) to minimize impacts to Covered Species.

8.34 Riparian Restoration Area.

8.34.1 Riparian habitat restoration shall be limited to 5.6 acres of riparian habitat and 14.7 acres of riverine habitat along Cross Creek.

8.34.2 Riparian Restoration Plan. The Permittee shall prepare and submit to CDFW a Riparian Restoration Plan (Plan) for review for proposed riparian restoration activities at the Mitigation Site. The riparian habitat restoration plan shall be limited to 5.6 acres of riparian habitat and 14.7 acres of riverine habitat along Cross Creek.

8.34.3 Permittee shall prepare and maintain GIS shapefile layers and associated maps depicting mapped areas of all restoration activities within the Riparian Restoration Area. Permittee shall provide the above information to CDFW with the Monthly Compliance Report.

8.34.4 Permittee shall document the cumulatively disturbed acreages of the Riparian Restoration Area at the Mitigation Site. Permittee shall provide the above information to CDFW with the Monthly Compliance Report.

8.34.5 Collection of canes from established trees to be used for replanting shall be limited to ten canes per tree and shall be collected between November and February.

8.34.6 Holes for replanting the canes shall be excavated using a small tractor with an attached auger.

8.34.7 Holes for container plants shall be excavated approximately three times the width and two times the height of the container size.

8.34.8 Installation of the temporary irrigation system shall be accomplished by hand using a utility truck to transport pipe to the Riparian Restoration Area. The temporary irrigation system shall be removed when plantings are sufficiently established and irrigation is no longer needed.

8.34.9 Riparian Restoration Area activities shall be limited to the use of hand tools, an auger mounted on a small tractor, and personal and light-duty trucks to transport and plant riparian trees and shrubs.

8.34.10 During riparian restoration, equipment shall be stored within a 0.25-acre area (100 feet X 100feet) outside the floodplain directly adjacent to the Riparian Restoration Area. The area shall not be scraped or otherwise cleared.

8.34.11 All Riparian Restoration Area Covered Activities shall occur outside the ordinary high water mark (OHWM) and be limited to those areas along the riparian restoration corridor. Trucks and other equipment shall remain on the upland side of the OHWM.

8.35 Vernal Pool Establishment Area.

8.35.1 Land grading and contouring shall occur only within the 8.7-acre Wetland Restoration Area, where vernal pools will be created.

8.35.2 Permittee shall maintain GIS shapefile layers and associated maps depicting mapped areas of all Covered Activities within the Vernal Pool Establishment Area. Permittee shall provide the above information to CDFW with the Monthly Compliance Report.

8.35.3 Permittee shall document the cumulatively disturbed acreages of the Vernal Pool Establishment Area at the Mitigation Site. Permittee shall provide the above information to CDFW with the Monthly Compliance Report.

8.35.4 Topsoil excavation shall be limited to the top three to four inches.

8.35.5 Soil shall not be disposed of offsite and exposed soil shall be reseeded with naturalized plant seed appropriate to the site to minimize erosion and invasive plant establishment.

8.35.6 A minimum of two inches of soil above the hardpan shall remain for propagation of vernal pool plants.

8.36 Inoculum Collection Area(s).

8.36.1 Permittee may collect inoculum from no more than 0.76 acres of natural vernal pools at the Mitigation Site. The inoculum shall be collected **only** for distribution within the created vernal pool basins at the Mitigation Site.

8.36.2 Permittee shall maintain GIS shapefile layers and associated maps depicting mapped areas of all disturbances within the Inoculum Collection Area. Permittee shall provide the above information to CDFW with the Monthly Compliance Report.

8.36.3 Permittee shall document the cumulatively disturbed acreages of the Inoculum Collection Area at the Mitigation Site. Permittee shall provide the above information to CDFW with the Monthly Compliance Report.

8.36.4 Inoculum will not be collected from vernal pools known to support non-native invasive flora (as defined, described, and inventoried as invasive by the California Invasive Plant Council with the exception of *Hordeum marinum, H. murinum, Hypochaeris glabra, Lolium multiflorum, Lythrum hyssopifolium, Plantago lanceolata*, and *Rumex crispus*) and fauna species (e.g., American bullfrog [*Lithobates catesbeianus*]) that could pose a threat to vernal pool vegetation or invertebrate communities. Inoculum will also not be collected from vernal pools known to support State-listed plants.

8.36.5 Inoculum shall not be collected from vernal pools known to support or found to support succulent owi's-clover (*Castilleja campestris spp. succulenta*) or other State-listed plants.

8.36.6 Inoculum shall be collected manually or by using a small, rubber-tired tractor to minimize disturbance to vernal pools.

8.36.7 A maximum of ten percent of each donor vernal pool's area shall be used for inoculum collection.

8.36.8 Inoculum collection shall be limited to no greater than one inch in depth to minimize disturbance to the donor vernal pools. Once inoculum is collected from a vernal pool, any scraped areas shall be smoothed out.

8.36.9 Inoculum collection shall only occur when the donor vernal pools are naturally and completely dry (soils hard and not saturated).

8.37 Specific Measures for CTS at the Mitigation Site.

8.37.1 CTS at the Mitigation Site. If CTS is found by any person at the Mitigation Site before or during Covered Activities, all work that could potentially harm the CTS shall stop immediately until the Designated Biologist(s) can relocate the CTS following the CTS Salvage and Relocation Plan specified in Condition of Approval 8.13.1 above. The relocation area(s) shall be identified in the CTS Salvage and Relocation Plan by the Designated Biologist(s) prior to the start of Covered Activities and are subject to CDFW approval.

8.37.2 CTS Record of Handling at the Mitigation Site. All CTS captures, relocations, and observations by the Designated Biologist(s) at the Mitigation Site shall include the following documented information: the date, time, and location of each occurrence using GPS technology; the name of the party that actually identified the CTS; circumstances of the incident; the general condition and health of each individual; any diagnostic markings, sex, age (juvenile or adult); actions undertaken; and habitat description. Permittee shall also submit this information to the CNDDB as per Condition of Approval 7.9. This information shall also be included in the Monthly Compliance Reports and Final Mitigation Report.

8.37.3 Burrow Avoidance and Excavation at the Mitigation Site. Prior to the commencement of any ground-disturbing activities in any areas occupied by CTS, the Designated Biologist, assisted (if needed) by the General Biological Monitor, shall conduct a survey for burrows occupied or potentially occupied by CTS. Potential CTS burrows shall be avoided by at least 50 feet during all Covered Activities at the Mitigation Site to prevent the collapse of the burrow openings, the burrow system, or otherwise entombing or crushing CTS. If burrows cannot be avoided, then they shall be hand excavated in accordance with Condition of Approval 8.13.4 and any CTS uncovered during burrow excavation shall be captured and relocated in accordance

with the CDFW-approved CTS Salvage and Relocation Plan as described in Condition of Approval 8.13.1 above.

8.37.4 Dry Season Work at the Mitigation Site. Fill or other ground-disturbing activities at the Mitigation Site shall be confined to the dry season from June 15th to October 31st.

8.37.5 Rain Forecast at the Mitigation Site. The Biological Monitor(s) and Permittee shall monitor the National Weather Service 72-hour forecast for the Mitigation Site. If a 70 percent or greater chance of rainfall is predicted within 72 hours, Permittee shall cease all Covered Activities at the Mitigation Site where initial ground disturbance (vegetation removal, grading, excavation, etc.) has yet to occur until zero percent chance of rain is forecast. Work may continue 24 hours after the rain ceases and there is zero percent chance of precipitation in the 72-hour forecast.

8.37.6 Soil Stockpiles at the Mitigation Site. Permittee shall ensure that soil stockpiles at the Mitigation Site are placed where soil will not pass into potential CTS breeding pools or into any other "Waters of the State," in accordance with Fish and Game Code section 5650. Permittee shall appropriately protect stockpiles to prevent soil erosion.

8.37.7 Fieldwork Code of Practice. To ensure that disease is not conveyed between Work Areas the Biological Monitor(s) shall follow the Fieldwork Code of Practice developed by the Declining Amphibian Populations Task Force (Attachment 2). The Biological Monitor(s) may substitute a bleach solution (0.5 to one cup of bleach to one gallon of water) for the ethanol solution. Care shall be taken so that all traces of the disinfectant are removed before entering the next aquatic habitat.

8.38 Specific Measures for SWHA at the Mitigation Site.

8.38.1 Pre-construction SWHA Surveys at the Mitigation Site. The Designated Biologist(s) with the assistance (if needed) of the General Biological Monitor(s) shall conduct pre-construction surveys at the Mitigation Site during the SWHA nesting season (February 15th through September 15th), prior to conducting Covered Activities in each Work Area. Pre-construction surveys shall occur no more than 30 days prior to beginning Covered Activities, and shall include a 0.5-mile buffer around each Work Area. The Designated Biologist(s) shall survey all suitable habitat/nest trees for nesting SWHA. The

Designated Biologist(s) or Designated Representative shall provide the nesting season survey results to CDFW in a written report no more than five days prior to beginning Covered Activities.

8.38.2 SWHA Nest Buffer at the Mitigation Site. The Permittee and Biological Monitor(s) shall ensure that no Covered Activities occur within 100 feet of a SWHA nest during the nesting season (February 15th through September 15th) at the Mitigation Site.

8.38.3 SWHA Nest Buffer and Monitoring at the Mitigation Site. If a nesting SWHA is found in a Work Area or the 0.5-mile Work Area buffer (See Condition of Approval 8.38.1), the Designated Biologist(s) shall be present daily for the entire duration of any Covered Activities within the Work Area to monitor the behavior of the potentially affected SWHA. The Designated Biologist(s) shall have the authority to order the cessation of all Covered Activities if the bird(s) exhibits distress and/or abnormal nesting behavior (swooping/stooping, excessive vocalization [distress calls], agitation, failure to remain on nest, failure to deliver prey items for an extended time period, etc.) which may cause reproductive failure (nest abandonment and loss of eggs and/or young). Permittee shall not resume Covered Activities until CDFW has been consulted by the Designated Biologist(s), and both the Designated Biologist(s) and CDFW confirm that the bird's behavior has normalized.

Construction Footprint O&M Activities

8.39 O&M Activity Requirement. Permittee shall implement all General Provisions set forth in Condition of Approval 6 of this ITP for O&M Covered Activities. Conditions of Approval 8.39 through 8.57 shall apply to O&M-related Covered Activities in the Construction Footprint.

8.40 O&M Quarterly Status Report. Permittee shall provide CDFW with an O&M Quarterly Status Report (O&M QSR) no later than the 15th day of January, March, June, and September beginning with issuance of this ITP and continuing until the expiration of this ITP. Each O&M QSR shall include, at a minimum: 1) a summary of all O&M Covered Activities completed for that quarter; 2) a general description of the status of the O&M Covered Activities, including actual or projected completion dates, if known; 3) a copy of the table in the MMRP with notes showing the current implementation status of each mitigation measure; 4) an assessment of the effectiveness of each completed or partially completed mitigation measure in avoiding, minimizing and mitigating O&M Covered

Activities impacts; 5) all available information about O&M-related incidental take of the Covered Species; 6) information about other O&M impacts on the Covered Species; 7) updates to the mapped areas of all land disturbances and mapped areas of identified habitat features suitable for Covered Species within the Work Area in accordance with Condition of Approval 7.4 above; 8) a summary of findings from pre-construction surveys (e.g., number of times a Covered Species or a den, burrow, or nest was encountered, location, if avoidance was achieved, if not, what other measures were implemented); 9) beginning and ending dates of O&M Covered Activities undertaken during the reporting quarter; and 10) a summary of the cumulative status of the disturbed acreages of all land disturbances and identified habitat features for each of the Covered Species within the Project Area, both for the preceding quarter and a total since ITP issuance, and the acreages of all land and identified habitat features anticipated to be disturbed over the succeeding quarter in accordance with Conditions of Approval 7.4 and 7.5 above.

8.41 Pre-O&M Covered Activities Clearance Surveys. Prior to starting any ground- or vegetation-disturbing O&M Covered Activities during the CTS breeding season (November 1st through March 31st) in each Work Area located within 1.3 miles of known or potential breeding habitat or within known or potential breeding habitat, the Designated Biologist(s) shall survey the Work Area for CTS. If any CTS are found, the Designated Biologist(s) shall relocate them from the Work Area in accordance with the CDFW-approved CTS Salvage and Relocation Plan (see Condition of Approval 8.13.1). Only approved Designated Biologist(s) are authorized to capture and handle the Covered Species.

8.42 CTS in O&M Work Area(s). If any CTS are found in a Work Area during O&M Covered Activities, all Covered Activities that could potentially harm CTS shall stop immediately until the Designated Biologist(s) can relocate the CTS following the CTS Salvage and Relocation Plan in accordance with Condition of Approval 8.13.1.

8.43 CTS Record of Handling for O&M Work Areas. All CTS captures, relocations, and observations by the Designated Biologist(s) during Covered Activities in O&M Work Areas shall include the following documented information: the date, time, and location of each occurrence using GPS technology; the name of the party that actually identified the CTS; circumstances of the incident; the general condition and health of each individual; any diagnostic markings, sex, age (juvenile or adult); actions undertaken; and habitat description. Permittee shall also submit this information to the CNDDB as per Condition of Approval 7.9. This information shall also be included in the O&M QSR and Final Mitigation Report.

8.44 O&M Covered Activities Rain Forecast. The Biological Monitor(s) and Permittee shall monitor the National Weather Service 72-hour forecast for the Project Area. If a 70 percent or greater chance of rainfall is predicted within 72 hours, Permittee shall cease all ground-disturbing O&M Covered Activities. Work may continue 24 hours after the rain ceases and there is zero percent chance of precipitation in the 72-hour forecast. If work must continue when rain is forecast, the Designated Biologist(s) shall survey the area and capture and relocate any CTS that are discovered. The individuals shall be relocated in accordance with the CDFW-approved CTS Salvage and Relocation Plan (see Condition of Approval 8.13.1).

8.45 O&M Pre-construction SWHA Surveys. The Designated Biologist(s) with assistance (if needed) from the General Biological Monitor(s) shall conduct pre-construction surveys in the O&M Work Areas during the SWHA nesting season (February 15th through September 15th), prior to conducting Covered Activities in each Work Area. Pre-construction surveys shall occur no more than 30 days prior to beginning O&M Covered Activities, and shall include a 0.5-mile buffer around each Work Area. The Designated Biologist(s) shall survey all suitable habitat/nest trees for nesting SWHA. The Designated Biologist(s) or Designated Representative shall provide the nesting season survey results to CDFW in a written report no more than five days prior to beginning Covered Activities.

8.46 O&M Nesting SWHA Nest Buffer. The Permittee and Biological Monitor(s) shall ensure that no O&M Covered Activities occur within 100 feet of a SWHA nest during the nesting season (February 15th through September 15th).

8.47 O&M SWHA Nest Buffer and Monitoring. If a nesting SWHA is found in the O&M Work Area or the 0.5-mile Work Area buffer (see Condition of Approval 8.14.1), including access routes, the Designated Biologist(s) shall be present daily for the entire duration of any ground-disturbing Covered Activities to monitor the behavior of the potentially affected SWHA. The Designated Biologist(s) shall have the authority to order the cessation of all Covered Activities if the bird(s) exhibits distress and/or abnormal nesting behavior (swooping/stooping, excessive vocalization [distress calls], agitation, failure to remain on nest, failure to deliver prey items for an extended time period, etc.) which may cause reproductive failure (nest abandonment and loss of eggs and/or young). Permittee shall not resume ground-disturbing Covered Activities until CDFW has been consulted by the Designated Biologist(s), and both the Designated Biologist(s) and CDFW confirm that the bird's behavior has normalized.

8.48 O&M SJKF Survey. No more than 30 days prior to Permittee beginning Covered Activities in each O&M Work Area, the Designated Biologist(s) shall perform a pre-construction survey for SJKF dens (potential, known, active, atypical, and natal) in the particular Work Area. The pre-construction survey shall cover the O&M Work Area(s) and a buffer zone of 500 feet in size beyond the Work Area's boundaries.

8.49 O&M SJKF Den Avoidance. If a potential SJKF den is discovered or a SJKF is found in an "atypical" den such as a pipe or culvert in the O&M Work Area(s), a minimum 50-foot buffer around the "atypical" den shall be established using flagging. If a known SJKF den is discovered in the Work Area(s), Permittee shall establish a minimum buffer of at least 100 feet around the den using fencing. If a natal den is discovered in the Work Area(s), a buffer of at least 200 feet around the den using fencing or flagging shall be established. For any natal dens with pups in the Work Area(s), the den shall have a buffer of at least 500 feet around it using fencing or flagging. Buffer zones shall be considered Environmentally Sensitive Areas, and no O&M Covered Activities are allowed within a buffer except per Condition of Approval 8.50. The Permittee shall notify the USFWS and CDFW's Regional Representative immediately via telephone or e-mail if any SJKF active dens, natal dens, or occupied atypical dens are discovered within or immediately adjacent to any O&M Work Area.

8.50 O&M SJKF Den Excavation and Blocking. For active dens and potential dens that exhibit signs of SJKF use or characteristics suggestive of SJKF dens (including dens in natural substrate and in/under man-made structures) within the portion of the O&M Work Area(s) to be disturbed and that cannot be avoided as per Condition of Approval 8.49, and if, after four consecutive days of monitoring with tracking medium or infrared camera, the Designated Biologist(s) has determined that SJKF is not currently present, the den may be excavated or blocked temporarily, the latter situation (blocking, as opposed to destruction) being required when the den will not be directly impacted by O&M activities. Potential SJKF dens without any signs of SJKF use in the O&M Work Area(s) may be excavated (destroyed) under the supervision of the Designated Biologist(s) without advance tracking or camera monitoring. Natal dens at the O&M Work Area(s) shall not be excavated until the pups and adults have vacated and then only after consultation with the USFWS and CDFW. If the excavation process reveals evidence of current use by SJKF then den excavation shall cease immediately and tracking or camera monitoring as described above shall be conducted/resumed. Excavation of the den may be completed when, in the judgment of the Designated Biologist(s), the SJKF has escaped from the partially excavated den. SJKF dens shall be carefully excavated until it is certain no individuals of SJKF are inside. Dens to be

destroyed shall be fully excavated, filled with dirt and compacted to ensure that SJKF cannot reenter or use the den during O&M Covered Activities. Dens to be blocked (e.g. not within the O&M disturbance footprint but within the no-disturbance buffer) shall be blocked with sandbags or other CDFW-approved material that ensures that SJKF cannot reenter or use the den during a specific O&M activity, but that can be easily removed at the cessation of that particular O&M activity. If an individual SJKF does not vacate a den within the O&M Work Area(s) within a reasonable timeframe, Permittee shall contact USFWS and CDFW and get written guidance (e-mail will suffice) from both agencies prior to proceeding with den excavation.

8.51 O&M SJKF Den Replacement. Within 30 days of fully excavating a den, filling it with dirt, and compacting it (see Condition of Approval 8.50), Permittee shall replace each destroyed (excavated) known, active, and natal den in the O&M Work Area(s) with an artificial den to compensate for the loss of important shelter used by SJKF for protection, reproduction, and escape from predators in accordance with the CDFW-approved SJKF Den Replacement Plan (see Condition of Approval 8.15.4).

8.52 Unblocking Temporarily Blocked SJKF Dens. SJKF dens blocked as per Condition of Approval 8.50 shall be unblocked (material at entrance removed) within 48 hours of the cessation of a specific O&M activity.

8.52.1 O&M SJAS Burrow Avoidance. Any burrows present within the portion of the Project Area to be disturbed by earthwork, that are suspected or known to be occupied by SJAS, and that cannot be avoided by the 50-foot avoidance buffer shall be live trapped by the Designated Biologist(s) prior to the initiation of ground-disturbing O&M activities in the occupied location. SJAS shall be trapped and relocated to the CDFW-approved release site identified in the SJAS relocation plan (described in ITP Condition 6.3). SJAS shall be relocated only after young of the year SJAS are observed above ground and during the main activity period for the species (April 1 to September 30).

8.52.2 O&M Burrow Excavation. Following live trapping activities, any occupied or potentially occupied SJAS burrows present within the portion of the Project site to be disturbed shall be fully excavated by hand by the Designated Biologist(s) to allow any remaining SJAS an opportunity to escape or be captured by hand as necessary. Any SJAS encountered in the excavated burrows shall be relocated to a CDFW-approved release site identified in the SJAS relocation plan

(described in Condition of Approval 8.16.1). Dormant or torpid SJAS encountered shall also be collected and moved to an artificial burrow installed at a CDFW-approved release site identified in the SJAS relocation plan (described in Condition of Approval 8.16.1). "Soft-release" methods in cages with artificially constructed burrows shall be used at the release (receiver) sites.

8.52.3 O&M TKR Burrows. Active TKR burrows shall be avoided to the maximum extent practicable. If earthwork (clearing and grubbing, grading, blading, filling) must occur within areas with active TKR burrows, these areas shall be live trapped by the Designated Biologist(s) prior to the initiation of ground-disturbing O&M activities in these areas to minimize direct mortality. Any captured TKR shall be relocated to the CDFW-approved release site identified in the TKR relocation plan (described in Condition of Approval 8.17.1).

8.52.4 TKR in O&M Work Areas. Following live trapping activities, any occupied or potentially occupied TKR burrows present within the portion of the Project site to be disturbed by O&M activities shall be fully excavated by hand by the Designated Biologist(s) to allow any remaining TKR an opportunity to escape or be captured by hand as necessary. Any TKR encountered in the excavated burrows shall be relocated to a CDFW-approved release site identified in the TKR relocation plan (described in Condition of Approval 8.17.1). Dormant or torpid TKR encountered shall also be collected and moved to an artificial burrow installed at a CDFW-approved release site identified in the TKR relocation plan (described in Condition of Approval 8.17.1). "Soft-release" methods in cages with artificially constructed burrows shall be used at the release (receiver) sites.

8.52.5 SJKF and TKR Record of Handling for O&M Work Areas The Designated Biologist(s) shall maintain a record of all SJAS and TKR handled, and all documented observations of SJKF. This information shall include for each animal: a) the locations (Global Positioning System [GPS] coordinates and maps) and time of capture and/or observation as well as release; b) sex; c) approximate age (adult/juvenile); d) weight; e) general condition and health, noting all visible conditions including gait and behavior, diarrhea, emaciation, salivation, hair loss, ectoparasites, and injuries; and f) ambient temperature when handled and released.

8.53 O&M Soil Stockpiles. Permittee shall ensure that soil stockpiles in the O&M Work Area(s) are placed where soil will not pass into potential CTS breeding pools or into any other "Waters of the State," in accordance with Fish and Game Code section 5650. Permittee shall appropriately protect stockpiles to prevent soil erosion.

8.54 O&M Vehicle Access. Permittee shall ensure all O&M Covered Activities are conducted utilizing access routes developed specifically for ingress and egress access to the Work Area(s). In the event emergency response requires vehicular access through areas outside of the Work Area(s), Permittee shall notify CDFW within 48 hours by calling the Regional Office at (559) 243-4005.

8.55 O&M Materials Inspection. Workers shall thoroughly inspect for Covered Species in all construction pipe, culverts, or similar structures with a diameter of 7.6 centimeters (three inches) or greater that are stored for one or more overnight periods before the structure is subsequently moved, buried, or capped. If during inspection one of these animals is discovered inside the structure, workers shall notify the Designated Biologist(s) and allow the Covered Species to safely escape that section of the structure before moving and utilizing the structure.

8.56 O&M Equipment Inspection. Workers shall inspect for Covered Species under vehicles and equipment at the O&M Work Area(s) before the vehicles and equipment are moved. If a Covered Species is present, the worker shall notify the Designated Biologist(s) and wait for the Covered Species to move unimpeded to a safe location. Alternatively, the Permittee shall contact the Designated Biologist(s) to determine if the Designated Biologist(s) can safely move the Covered Species out of harm's way in compliance with this ITP.

8.57 O&M Daily Entrapment Inspections. The Biological Monitor(s) shall inspect all open holes, sumps, and trenches within each O&M Work Area at the beginning, middle, and end of each day for trapped Covered Species. All trenches, holes, sumps, and other excavations with sidewalls steeper than a 1:1 (45 degree) slope and that are between two- and eight feet deep shall be covered when workers or equipment are not actively working in the excavation, which includes cessation of work overnight, or shall have an escape ramp of earth or a non-slip material with a less than 1:1 (45 degree) slope. All trenches, holes, and other excavations with sidewalls steeper than a 1:1 (45 degree) slope and greater than eight feet deep shall be covered when workers or equipment are not actively working in the excavation and at the end of each work day. To prevent inadvertent entrapment of Covered Species or any other animals, the Biological Monitor(s) shall oversee the covering of all excavated, trenches, holes, sumps,

or other excavations with a greater than 1:1 (45 degree) slope of any depth with barrier material (such as hardware cloth) at the close of each working day such that Covered Species are unable to dig or squeeze under the barrier and become entrapped. The outer two feet of excavation cover shall conform to solid ground so that gaps do not occur between the cover and the ground and secured with soil staples or similar means to prevent gaps. Each morning, mid-day, the end of each day (including weekends and any other non-work days), and immediately before trenches, holes, sumps, or other excavations are back-filled, the Biological Monitor(s) shall thoroughly inspect them for trapped Covered Species. Trenches, holes, sumps, or other excavations that are covered long-term shall be inspected at the beginning of each working day to ensure inadvertent entrapment has not occurred. If any worker discovers that Covered Species have become trapped, Permittee shall cease all Covered Activities in the vicinity and notify the Designated Biologist(s) immediately. Project workers and the Biological Monitor(s) shall allow the Covered Species to escape unimpeded if possible before Covered Activities are allowed to continue, or, if the Covered Species is CTS, the Designated Biologist(s) shall capture and relocated the animal as per the CTS Salvage and Relocation Plan described in Condition of Approval 8.13.1.

9. **Habitat Management Land Acquisition:**
CDFW has determined that permanent protection and perpetual management of compensatory habitat is necessary and required pursuant to CESA to fully mitigate Project-related impacts of the taking on the Covered Species. This determination is based on factors including an assessment of the importance of the habitat in the Project Area, the extent to which the Covered Activities will impact the habitat, and CDFW's estimate of the acreage required to provide for adequate compensation.

To meet this requirement, the Permittee shall provide for both the permanent protection and management of Habitat Management (HM) lands. The HM land amount required for each Covered Species is specified in the "Required Mitigation Acreage" column of Table 11, below. CDFW may determine that a specific mitigation property or acreage satisfies the required HM land obligation for more than one Covered Species. CDFW has already determined which Covered Species HM land acreage obligations could be satisfied by acquisition of the Proposed Mitigation Sites specified in Table 12 below. The Proposed Mitigation Sites listed in Table 12 are potential HM lands which may or may not ultimately be acquired, depending on purchase price, availability, title encumbrances, CDFW approval, and other factors. For any other proposed HM lands (e.g. those not listed in Table 12), Permittee must acquire CDFW's written determination as to which Covered Species HM land obligations could be met by acquisition of that property and the associated acreages, prior to acquisition. All HM land acquisition must be pursuant to Condition of Approval 9.2 below and the

calculation and deposit of the management funds pursuant to Condition of Approval 9.3 below. Permanent protection and funding for perpetual management of compensatory habitat must be complete before starting Covered Activities, or within 18 months of the start of Project construction, as documented in the Notification Before Commencement submitted pursuant to Condition of Approval 7.1 if Security is provided pursuant to Condition of Approval 10 below for all uncompleted obligations.

Table 11. Required Mitigation for Project-Related Impacts to Covered Species

Covered Species Name (Common Name/Scientific Name)	Habitat Type	CP 1C Direct Impact	CP 2-3 Direct Impact	CP 4 Direct Impact	Required Mitigation Acreage
California tiger salamander (*Ambystoma californiense*)	Upland	0.0	9.06	0.0	27.18
	Aquatic	0.0	9.64	0.0	0.96
Swainson's hawk (*Buteo swainsoni*) (active trees within 0.5 mile of the project footprint)	Foraging habitat 0-1 miles	0.0	407.73	0.0	407.73
	Foraging habitat 1-5 miles	0.0	1,023.00	0.0	767.25
	Foraging habitat 5-10 miles	0.0	614.80	0.0	307.40
San Joaquin antelope squirrel (*Ammospermophilus nelsoni*)	Natural	0.0	49.89	12.14	186.09
Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*)	Natural	0.0	136.81	12.14	446.85
San Joaquin kit fox (*Vulpes macrotis*)	Natural and agriculture	45.89	2,952.03	448.28	1,547.07

Table 12. Proposed Mitigation Sites

Species	Proposed. Mitigation (acres)	Lazy K — (Project MA): (529:79 acres)	Yang (316.4 acres)	Staffel (61.2 acres)	Buena Vista Dairy (715 acres)	Fagi.mdes (4b5 acres)	Smith Offering (5A22 acres)	**Total** Available (acres)
California tiger salamander (aquatic)	**0.96**	N/A[1]	0	0	0	10.3	0	**10.3**
California tiger salamander (upland)	**27.18**	N/A[1]	0	0	0	379.75	0	**379.75**
Swainson's hawk	**1,482.38**	N/A[2]	316.4	61.2	715	405	309.7	**1,807.3**
Nelson's antelope squirrel	**186.09**	**0**	316.4	61.2	715	0	309.7	**1,402.3**
Tipton kangaroo rat	**446.85**	**0**	316.4	61.2	715	0	309.7	**1,402.3**
San Joaquin kit fox	**1,547.07**	35.24[3]	316.4	61.2	715	384.7	309.7	**1,822.24**

[1]The Lazy K mitigation site has 5.93 acres of aquatic and 335.3 acres of upland habitats for CTS. The Project will impact a population of CTS that is genetically distinct from the population at the Lazy K site. Therefore, no Project mitigation for CTS was proposed at Lazy K.
[2]The Lazy K mitigation site has 318.9 acres of SWHA. However, the Project will not be mitigating for impacts to SWHA at Lazy K.
[3]The Lazy K mitigation site has 246 acres of SJKF, of which only 35.24 acres may be used to mitigate for Project impacts.

9.1. Cost Estimates. CDFW has estimated the cost of acquisition, protection, and perpetual management of the HM lands as follows:

9.1.1. Land acquisition costs for HM lands identified in Condition of Approval 9.2 below, estimated at an average of $11,413.90/acre for up to 3,040 acres: **$34,698,256.00**. Land acquisition costs are estimated using local fair market current value for lands with habitat values meeting mitigation requirements;

9.1.2. Start-up costs for HM lands, including initial site protection and enhancement costs as described in Condition of Approval 9.2.5 below, estimated at **$1,616,189.96**;

9.1.3. Interim management period funding as described in Condition of Approval 9.2.6 below, estimated at **$714,152.21**;

9.1.4. Long-term management funding as described in Condition of Approval 9.3 below, estimated at $3,570.26/acre for up to 3,040 acres: **$9,021,379.44**. Long-term management funding is estimated initially for the purpose of providing Security to ensure implementation of HM lands management.

9.1.5. Related transaction fees including but not limited to account set-up fees, administrative fees, title and documentation review and related title transactions, expenses incurred from other state agency reviews, and overhead related to transfer of HM lands to CDFW as described in Condition of Approval 9.4, estimated at **$12,000**.

9.2. Habitat Acquisition and Protection. To provide for the acquisition and perpetual protection and management of the HM lands, the Permittee shall:

9.2.1. Fee Title/Conservation Easement. Transfer fee title to the HM lands to CDFW pursuant to terms approved in writing by CDFW. Alternatively, CDFW, in its sole discretion, may authorize a governmental entity, special district, non-profit organization, for-profit entity, person, or another entity to hold title to and manage the property provided that the district, organization, entity, or person meets the requirements of Government Code sections 65965-65968, as amended. If CDFW does not hold fee title to the HM lands, CDFW shall act as grantee for a conservation easement over the HM lands or shall, in its sole discretion, approve a non-profit entity, public agency, or Native American tribe to act as grantee for a conservation easement over the HM lands provided that the entity, agency, or tribe meets the requirements of Civil Code section 815.3. If CDFW does not hold the conservation easement, CDFW shall be expressly named in the conservation easement as a third-party beneficiary. The Permittee shall obtain CDFW written approval of any conservation easement before its execution or recordation. No conservation easement shall be approved by CDFW unless it complies with Government Code sections 65965-65968, as amended and includes

provisions expressly addressing Government Code sections 65966(j) and 65967(e);

9.2.2. HM Lands Approval. Obtain CDFW written approval of the HM lands before acquisition and/or transfer of the land by submitting, at least three months before acquisition and/or transfer of the HM lands, a formal Proposed Lands for Acquisition Form (see Attachment 3A) identifying the land to be purchased or property interest conveyed to an approved entity as mitigation for the Project's impacts on Covered Species, as well as the amount of required HM land obligation for each Covered Species to be satisfied by the land included in the Proposed Lands for Acquisition Form;

9.2.3. HM Lands Documentation. Provide a recent preliminary title report, initial hazardous materials survey report, and other necessary documents (see Attachment 3B). All documents conveying the HM lands and all conditions of title are subject to the approval of CDFW, and if applicable, the Wildlife Conservation Board and the Department of General Services;

9.2.4. Land Manager. Designate both an interim and long-term land manager approved by CDFW. The interim and long-term land managers may, but need not, be the same. The interim and/or long-term land managers may be the landowner or another party. Documents related to land management shall identify both the interim and long-term land managers. Permittee shall notify CDFW of any subsequent changes in the land manager within 30 days of the change. If CDFW will hold fee title to the mitigation land, CDFW will also act as both the interim and long-term land manager unless otherwise specified.

9.2.5. Start-up Activities. Provide for the implementation of start-up activities, including the initial site protection and enhancement of HM lands, once the HM lands have been approved by CDFW. Start-up activities include, at a minimum: (1) preparing a final management plan for CDFW approval (see http://www.dfg.ca.gov/habcon/conplan/mitbank/); (2) conducting a baseline biological assessment and land survey report within four months of recording or transfer; (3) developing and transferring Geographic Information Systems (GIS) data if applicable; (4) establishing initial fencing; (5) conducting litter removal;

(6) conducting initial habitat restoration or enhancement, if applicable; and (7) installing signage;

9.2.6. Interim Management (Initial and Capital). Provide for the interim management of the HM lands. The Permittee shall ensure that the interim land manager implements the interim management of the HM lands as described in the final management plan and any conservation easement approved by CDFW. The interim management period shall be a minimum of three years from the date of HM land acquisition and protection and full funding of the Endowment and includes expected management following start-up activities. Interim management period activities described in the final management plan shall include fence installation and repair, continuing trash removal, site monitoring, and vegetation and invasive species management. Permittee shall either (1) provide a security to CDFW for the minimum of three years of interim management that the land owner, Permittee, or land manager agrees to manage and pay for at their own expense, (2) establish an escrow account with written instructions approved in advance in writing by CDFW to pay the land manager annually in advance, or (3) establish a short-term enhancement account with CDFW or a CDFW-approved entity for payment to the land manager.

9.3. Endowment Fund. The Permittee shall ensure that the HM lands are perpetually managed, maintained, and monitored by the long-term land manager as described in this ITP, any conservation easement, and the final management plan approved by CDFW. After obtaining CDFW approval of the HM lands, Permittee shall provide long-term management funding for the perpetual management of the HM lands by establishing a long-term management fund (Endowment). The Endowment is a sum of money, held in a CDFW-approved fund that provides funds for the perpetual management, maintenance, monitoring, and other activities on the HM lands consistent with the management plan(s) required by Condition of Approval 9.2.5. Endowment as used in this ITP shall refer to the endowment deposit and all interest, dividends, other earnings, additions and appreciation thereon. The Endowment shall be governed by this ITP, Government Code sections 65965-65968, as amended, and Probate Code sections 18501-18510, as amended.

After the interim management period, Permittee shall ensure that the designated long-term land manager implements the management and monitoring of the HM lands according to the final management plan. The long-term land manager shall be obligated to manage and monitor the

HM lands in perpetuity to preserve their conservation values in accordance with this ITP, the conservation easement, and the final management plan. Such activities shall be funded through the Endowment.

9.3.1. Identify an Endowment Manager. The Endowment shall be held by the Endowment Manager, which shall be either CDFW or another entity qualified pursuant to Government Code sections 65965-65968, as amended. Permittee shall submit to CDFW a written proposal that includes: (i) the name of the proposed Endowment Manager; (ii) whether the proposed Endowment Manager is a governmental entity, special district, nonprofit organization, community foundation, or congressionally chartered foundation; (iii) whether the proposed Endowment Manager holds the property or an interest in the property for conservation purposes as required by Government Code section 65968(b)(1) or, in the alternative, the basis for finding that the Project qualifies for an exception pursuant to Government Code section 65968(b)(2); and (iv) a copy of the proposed Endowment Manager's certification pursuant to Government Code section 65968(e). Within thirty days of CDFW's receipt of Permittee's written proposal, CDFW shall inform Permittee in writing if it determines the proposal does not satisfy the requirements of Fish and Game Code section 2081(b)(4) and, if so, shall provide Permittee with a written explanation of the reasons for its determination. If CDFW does not provide Permittee with a written determination within the thirty-day period, the proposal shall be deemed consistent with Section 2081(b)(4).;

9.3.2. Calculate the Endowment Funds Deposit. After obtaining CDFW written approval of the HM lands, long-term management plan, and Endowment Manager, Permittee shall prepare a Property Analysis Record (PAR) [or PAR-equivalent analysis (hereinafter "PAR")] to calculate the amount of funding necessary to ensure the long-term management of the HM lands (Endowment Deposit Amount). The Permittee shall submit to CDFW for review and approval the results of the PAR before transferring funds to the Endowment Manager.

9.3.2.1. Capitalization Rate and Fees. Permittee shall obtain the capitalization rate from the selected Endowment Manager for use in calculating the PAR and adjust for any additional administrative, periodic, or annual fees.

9.3.2.2. Endowment Buffers/Assumptions. Permittee shall include in PAR assumptions the following buffers for endowment

establishment and use that will substantially ensure long-term viability and security of the Endowment:

9.3.2.2.1. 10 Percent Contingency. A 10 percent contingency shall be added to each endowment calculation to hedge against underestimation of the fund, unanticipated expenditures, inflation, or catastrophic events.

9.3.2.2.2. Three Years Delayed Spending. The endowment shall be established assuming spending will not occur for the first three years after full funding.

9.3.2.2.3. Non-annualized Expenses. For all large capital expenses to occur periodically but not annually such as fence replacement or well replacement, payments shall be withheld from the annual disbursement until the year of anticipated need or upon request to Endowment Manager and CDFW.

9.3.3. Transfer Long-term Endowment Funds. Permittee shall transfer the long-term endowment funds to the Endowment Manager upon CDFW approval of the Endowment Deposit Amount identified above. The approved Endowment Manager may pool the Endowment with other endowments for the operation, management, and protection of HM lands for local populations of the Covered Species but shall maintain separate accounting for each Endowment. The Endowment Manager shall, at all times, hold and manage the Endowment in compliance with this ITP, Government Code sections 65965-65968, as amended, and Probate Code sections 18501-18510, as amended.

9.4. Reimburse CDFW. Permittee shall reimburse CDFW for all reasonable expenses incurred by CDFW such as transaction fees, account set-up fees, administrative fees, title and documentation review and related title transactions, expenses incurred from other state agency reviews, and overhead related to transfer of HM lands to CDFW.

10. Performance Security

The Permittee may proceed with Covered Activities only after the Permittee has ensured funding (Security) to complete any activity required by Condition of Approval 9

that has not been completed before Covered Activities begin. The Permittee has indicated it will be entering into an agreement (Contract) with another party for that party to fulfill Condition of Approval 9's requirements (the Mitigation Contractor) for the mitigation obligations associated with the CP2-3 portion of the Project. Nevertheless, Permittee is ultimately responsible under this ITP to complete the requirements and enforce its Contract with the Mitigation Contractor. Permittee shall provide Security for the entire Project as follows:

10.1. Security Amount. The Security shall be in the amount of **$46,049,977.61**. This amount is based on the cost estimates identified in Condition of Approval 9.1 above.

10.2. Security Form. The Security shall be in the form of an irrevocable letter of credit (see Attachment 3) or another form of Security approved in advance in writing by CDFW's Office of the General Counsel.

10.3. Security Timeline. The Security shall be provided to CDFW before Covered Activities begin or within 180 days after the effective date of this ITP, whichever occurs first.

10.4. Security Holder. The Security shall be held by CDFW or in a manner approved in advance in writing by CDFW.

10.5. Security Transmittal. If CDFW holds the Security, Permittee shall transmit it to CDFW with a completed Mitigation Payment Transmittal Form (see Attachment 4) or by way of an approved instrument such as escrow, irrevocable letter of credit, or other.

10.6. Security Drawing. The Security shall allow CDFW to draw on the principal sum if CDFW, in its sole discretion, determines that the Permittee has failed to comply with the Conditions of Approval of this ITP.

10.7. Security Release. If CDFW holds the Security (or any portion of the Security then remaining) shall be released to the Permittee after CDFW has conducted an on-site inspection and received confirmation that all secured requirements have been satisfied, as evidenced by:

- Written documentation of the acquisition of the HM lands;
- Copies of all executed and recorded conservation easements;
- Written confirmation from the approved Endowment Manager of its receipt of the full Endowment; and

- Timely submission of all required reports.

Even if Security is provided, the Permittee must complete the required acquisition, protection and transfer of all HM lands and record any required conservation easements no later than 18 months from the start of Project construction, as documented in the Notification Before Commencement submitted pursuant to Condition of Approval 7.1. CDFW may require the Permittee to provide additional HM lands and/or additional funding to ensure the impacts of the taking are minimized and fully mitigated, as required by law, if the Permittee does not complete these requirements within the specified timeframe.

Amendment:
This ITP may be amended as provided by California Code of Regulations, Title 14, section 783.6, subdivision (c), and other applicable law. This ITP may be amended without the concurrence of the Permittee as required by law, including if CDFW determines that continued implementation of the Project as authorized under this ITP would jeopardize the continued existence of the Covered Species or where Project changes or changed biological conditions necessitate an ITP amendment to ensure that all Project-related impacts of the taking to the Covered Species are minimized and fully mitigated.

Stop-Work Order:
CDFW may issue Permittee a written stop-work order requiring Permittee to suspend any Covered Activity for an initial period of up to 25 days to prevent or remedy a violation of this ITP, including but not limited to the failure to comply with reporting or monitoring obligations, or to prevent the unauthorized take of any CESA endangered, threatened, or candidate species. Permittee shall stop work immediately as directed by CDFW upon receipt of any such stop-work order. Upon written notice to Permittee, CDFW may extend any stop-work order issued to Permittee for a period not to exceed 25 additional days. Suspension and revocation of this ITP shall be governed by California Code of Regulations, Title 14, section 783.7, and any other applicable law. Neither the Designated Biologist nor CDFW shall be liable for any costs incurred in complying with stop-work orders.

Compliance with Other Laws:
This ITP sets forth CDFW's requirements for the Permittee to implement the Project pursuant to CESA. This ITP does not necessarily create an entitlement to proceed with the Project. Permittee is responsible for complying with all other applicable federal, state, and local law.

Notices:
The Permittee shall deliver a fully executed duplicate original ITP by registered first class mail or overnight delivery to the following address:

Habitat Conservation Planning Branch
California Department of Fish and Wildlife
Attention: CESA Permitting Program
1416 Ninth Street, Suite 1266
Sacramento, California 95814

Written notices, reports and other communications relating to this ITP shall be delivered to CDFW by registered first class mail at the following address, or at addresses CDFW may subsequently provide the Permittee. Notices, reports, and other communications shall reference the Project name, Permittee, and ITP Number (2081-2015-024-04) in a cover letter and on any other associated documents.

Original cover with attachment(s) to:

Regional Manager
California Department of Fish and Wildlife
1234 East Shaw Avenue
Fresno, California 93710
(559)243-4005
(559)243-4022

and a copy to:

Habitat Conservation Planning Branch
California Department of Fish and Wildlife
Attention: CESA Permitting Program
1416 Ninth Street, Suite 1266
Sacramento, California 95814

Unless Permittee is notified otherwise, CDFW's Regional Representative for purposes of addressing issues that arise during implementation of this ITP is:

Dyana Valencourt
California Department of Fish and Wildlife
1234 East Shaw Avenue
Fresno, California 93710
Dyana.Valencourt@wildlife.ca.gov
(559)243-4014, extension 261
(559)243-4020

Compliance with the California Environmental Quality Act (CEQA):
CDFW's issuance of this ITP is subject to CEQA. CDFW is a responsible agency pursuant to CEQA with respect to this ITP because of prior environmental review of the Project by the

lead agency, the California High Speed Rail Authority. (See generally Pub. Resources Code, §§ 21067, 21069.) The lead agency's prior environmental review of the Project is set forth in the California High-Speed Train Fresno to Bakersfield Section Final Project Environmental Impact Report/Environmental Impact Statement (EIR/EIS) (SCH No.:2009091126) certified by The California High-Speed Rail Authority on May 7, 2014. At the time the lead agency certified the EIR/EIS and approved the Project, it also adopted various mitigation measures for the Covered Species as conditions of Project approval.

This ITP, along with CDFW's related CEQA findings, which are available as a separate document, provide evidence of CDFW's consideration of the lead agency's EIR/EIS for the Project and the environmental effects related to issuance of this ITP (CEQA Guidelines, § 15096, subd. (f)). CDFW finds that issuance of this ITP will not result in any previously undisclosed potentially significant effects on the environment or a substantial increase in the severity of any potentially significant environmental effects previously disclosed by the lead agency. Furthermore, to the extent the potential for such effects exists, CDFW finds adherence to and implementation of the Conditions of Project Approval adopted by the lead agency, and that adherence to and implementation of the Conditions of Approval imposed by CDFW through the issuance of this ITP, will avoid or reduce to below a level of significance any such potential effects. CDFW consequently finds that issuance of this ITP will not result in any significant, adverse impacts on the environment.

Findings Pursuant to CESA:
CESA and CDFW's related implementing regulations require CDFW to prepare and adopt specific findings under CESA prior to and in connection with the issuance of this ITP. (See, e.g. Fish & G. Code § 2081, subs. (b)-(c); Cal. Code Regs., tit. 14, §§ 783.4, subds, (a)-(b), 783.5, subd. (c)(2).) CDFW's CESA findings for this ITP are available in a separate document as adopted by CDFW.

Attachments:

EXHIBIT 1	Map of Project
EXHIBIT 2	Project Construction Elements
EXHIBIT 3	Project Profile, Drainage Facilities, and Dedicated Wildlife Movement Structures
EXHIBIT 4	Fresno to Bakersfield Electrical Stations Diagram
ATTACHMENT 1	Mitigation Monitoring and Reporting Program
ATTACHMENT 2	Fieldwork Code of Practice developed by the Declining Amphibian Populations Task Force
ATTACHMENT 3A, 3B	Proposed Lands for Acquisition Form; Habitat Management Lands Checklist
ATTACHMENT 4	Letter of Credit Form
ATTACHMENT 5	Mitigation Payment Transmittal Form

ISSUED BY THE CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

on 6/15/15

Gerald Hatler, Acting Regional Manager
CENTRAL REGION

ACKNOWLEDGMENT

The undersigned: (1) warrants that he or she is acting as a duly authorized representative of the Permittee, (2) acknowledges receipt of this ITP, and (3) agrees on behalf of the Permittee to comply with all terms and conditions

By: _____ Date: June 15, 2015

Printed Name: Mark A. McLoughlin Title: Director of Environmental Services